Environment Canada
Proficiency Testing Program

Study 0104
September 2014

Trace Elements in Water

Environment Canada Proficiency Testing Program

Glossary of Terms and Definitions

A. Statistics listed in Data Summary (Appendix A)

1.	Assigned Value	The Robust Mean of test results for a parameter and sample [1]
2.	R-Std Dev	Robust Standard Deviation [1]
3.	Acceptable Limits	See 'Limits & Flags' and Table 1
4.	Warning Limits	See 'Limits & Flags' and Table 1
5.	Action Limits	See 'Limits & Flags' and Table 1
6.	N	The number of usable test results for calculating the assigned value

B. Calculation of Performance Statistics (Appendix A)

Laboratory Bias: Laboratory Bias [2] D = x-X, where D is the deviation, x is the test result and X is the assigned value. This deviation is normalized with the robust standard deviation (R-Std Dev) and evaluated by the z-score [3].

Limits & Flags: Acceptable Limits/No Flags: When a test result is within 2 R-Std Dev of the assigned value, flags are not assigned (see Table 1 below).

Warning Limits/Warning Flags: When a test result is between 2 and 3 R-Std Dev, the flags 'WH' or 'WL' indicate a WARNING flag, for a high or low result respectively (see Table 1 below).

Action Limits/Action Flags: When a test result deviates by more than 3 R-Std Dev from the assigned value, the flags 'AH' or 'AL' indicate an ACTION flag, high or low respectively (see Table 1 below).

Table 1 Evaluating test results, determining limits and assigning flags [2]

Criteria	Limits	Flags
Assigned value ± 2 $\hat{\sigma}$*	Acceptable Limits	No Flag
2 $\hat{\sigma}$ - 3 $\hat{\sigma}$ from assigned value	Warning Limits	Warning Flag (W)
> 3 $\hat{\sigma}$ from assigned value	Action Limits	Action Flag (A)

* $\hat{\sigma}$ is the R-Std Dev

Systemic Bias: Systemic bias is indicated when a laboratory's test results (ranked by the Youden non-parametric analysis [4] for an individual parameter) are consistently higher or lower than the assigned value. Ranks are assigned to each test result for each sample, from 1 for the lowest, to N for the highest, where N is the number of usable test results. These ranks are totalled for each laboratory (Total Rank), and divided by the number of samples ranked (No. Samples Ranked). **Total Rank** and **Average Rank** for each laboratory are displayed on page 2 of the Data Summary. The **Overall Average Rank** for each parameter is shown at the bottom of the same page. Systemic bias is identified when a laboratory's **Average Rank** falls outside of the 95% confidence interval for the **Overall Average Rank**. Systemic bias may be indicated by the Youden rankings even when the test results have not been flagged (W or A) for deviation from the assigned value.

No. Samples Ranked: This is the number of test results used to determine systemic bias. A laboratory must report results for more than half of the samples in the set to allow for evaluation of bias (not including '<'). There must be ten or more laboratories participating, with sufficient test results reported, to determine systemic bias.

The two measured components of 'systemic' bias are 1) Bias Blank and 2) Bias % Slope. These components are illustrated in Figure 1: Parameter Performance. All 'systemic' biases are correctable with the investigation of the following two analytical components.

1) Bias Blank: The first component is the y-intercept of the linear regression plot (-0.0329 in Figure 1). These bias blanks are stated in the Data Summary and Evaluations for each parameter.

2) Bias % Slope: The second measured component is the % deviation of the laboratory test results versus the assigned values for a parameter. This is calculated as [(**m-1**) x 100], where **m** is the slope of the linear regression plot (laboratory test results) and **1** is the slope of the "ideal" line (assigned values). The Bias % Slope in Figure 1 below is minus 1.55 per cent (-1.55%). For most parameters, a Bias % Slope greater than the absolute value of 5 is considered unacceptable and <u>requires action</u>.

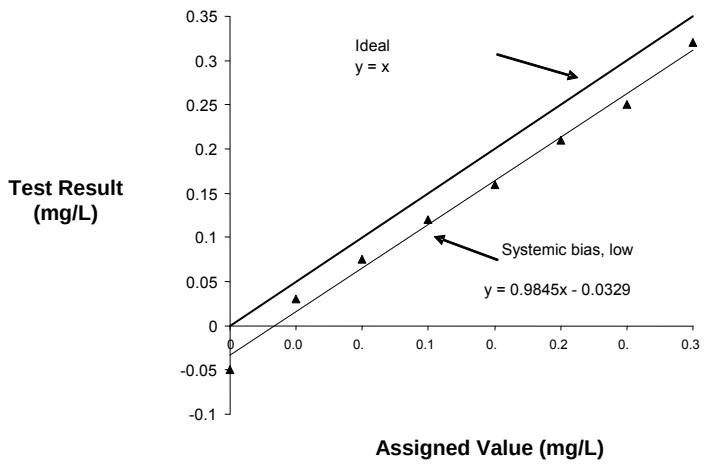

Figure 1: Parameter Performance

Bias Statement: Systemic bias is noted with the 'BIASED HIGH' or 'BIASED LOW' notations. In Table 2 of the Final Report (Laboratory Performance Scores), systemic biases are calculated as the equivalent of *five* flagged values.

Method Coding: Method codes are an important part of quality assurance. These definitions are provided on the Data Reporting Forms to assist with uniform descriptions.

C. Determination of the 'Laboratory Performance Scores' in Table 2

The 'Laboratory Performance Scores' are a combination of 50% **Systemic Bias (parameters biased)** and 50% **Flagged Results**.

- Systemic bias (50%) is calculated as,

  [(No. of Parameters Biased / No. of Parameters Analyzed) x100] / 2

- Flagged results (50%) is calculated as,

  [(No. of Flags Assigned / No. of Results Reported) x100] / 2

These percentages are summed to obtain the % Score (Sum of Parameters Biased & Flagged Results)

The Laboratory Performance Rating is assigned according to the % Score.

- Very Good: 0 to 5%;
- Good: >5 to 12.5%;

- Fair: >12.5 to 30%
- Poor: >30%.

D. Uncertainty of Assigned Values

The standard uncertainty (u_X)of the assigned value may be estimated from the statistics presented in the data summary (Appendix A),

$$u_X = 1.25 \times \text{R-Std Dev} / \sqrt{N} \qquad [5]$$

This uncertainty is not used in the performance evaluations, but may be of interest to some participants. Reporting details of the measurement uncertainty of any assigned value is a requirement of *ISO/IEC 17043:2010, Conformity assessment – General requirements for proficiency testing.*

E. Associated Laboratory Evaluations with the Final Report

1. Laboratory Proficiency Appraisal (see Table 2 in the Final Report for definitions)
2. Z-Score Summary [3]

References:

[1] ISO 13528:2005(E), Statistical Methods for the use in Proficiency Testing by Interlaboratory Comparisons, Annex C, Robust Analysis, Section C.1: Algorithm A, p64.

[2] ISO 13528:2005(E), Statistical Methods for the use in Proficiency Testing by Interlaboratory Comparisons, Calculation of Performance Statistics, Section 7.1.1 and 7.1.2, p18-19.

[3] ISO 13528:2005(E), Statistical Methods for the use in Proficiency Testing by Interlaboratory Comparisons, *z*-scores, Section 7.4.1 and 7.4.2, p25-26.

[4] Ranking Laboratories by Round-Robin Tests, W.J. Youden, Precision Measurement and Calibration, H.H. Ku, Editor, NBS Special Publication 300-Volume 1, U.S. Government Printing Office, Washington, D.C., 1969.

[5] ISO 13528:2005(E), Statistical Methods for the use in Proficiency Testing by Interlaboratory Comparisons, Standard uncertainty u_X of the assigned value , Section 5.6.2, p 9-10.

Appendix A

Section 3 – Trace Elements in Water (TE)

Table 1	Participating Laboratories
Table 2	Laboratory Performance Scores
Table 3	Five-Year Historical Laboratory Performance
Table 4	Sample Design
Table 5	Summary of Interlaboratory Robust Means
Appendix A	Data Summary

Program Name: FPTM

Study Code: 0104 Range of Samples: 1 to 10

Table 1 Participating Laboratories in FP PT for Trace Elements in Water

ALS Environmental (Winnipeg) - Winnipeg, MB, CA
ASG / Canmet Mining / NRCan, Ottawa, ON, CA
Capital District Health Authority, QEII Lab, Halifax, NS, CA
CSIRO Land and Water, Lucas Heights, NSW, AU
Dade County DERM Lab, Miami, FL, US
Environment Canada, ALET, Moncton, NB, CA
Environment Canada, NLET, Burlington, ON, CA
Environment Canada, PYLET, Vancouver, BC, CA
Environnement Canada, LEEQ, Montréal, QC, CA
Environnement Québec, CEAEQ, Laval, QC, CA
Exova, Edmonton, AB, CA
Florida DEP Central Lab, Tallahassee, FL, US
Kinectrics Inc., Toronto, ON, CA
Maxxam Analytics (Burnaby) - Burnaby, BC, CA
McGill University, Ste-Anne-de-Bellevue, QC
Ministry of Agriculture, Strovolos, Nicosia, CY
Empresa Publica Social de Agua y Saneamiento (EPSAS), La Paz, Bolivia
NRCan, CDN Forestry Service, ON Region,Sault Ste.Marie,ON,CA
Santé Canada, BPR-RQ, Longueuil, QC, CA
Saskatchewan Research Council, Saskatoon, SK, CA
Servicio Geologico Minero Argentino, Buenos Aires, Argentina
South FL Water Management Dist. Chem Lab,WestPalmBeach,FL,US
TAIGA Environmental Laboratory, Yellowknife, NT, CA
TestAmerica Pensacola, Pensacola, FL
Universidade da Coruña, A Coruña, ES
USGS-National Water Quality Laboratory, Denver, CO, US

28 Laboratories (2 laboratory names unpublished).

Program Name: FPTM **Number of Labs:** 34

Study Code: 0104 **Range of Samples:** 1 to 10

Table 2 Laboratory Performance Scores - FP PT for Trace Elements in Water

	Systemic Bias			Flagged Results			
Lab Code	No. of Parameters Analyzed	No. of Parameters Biased	Parameters Biased (50%)	No. of Results Reported	No. of Flags Assigned	Results Flagged (50%)	% Score (Sum of Parameters Biased & Results Flagged)
F003	28	1	1.79	280	0	0.00	1.79
F022	29	1	1.72	290	8	1.38	3.10
F249b	18	1	2.78	177	2	0.56	3.34
F026	16	1	3.13	160	5	1.56	4.69
F249	20	2	5.00	200	3	0.75	5.75
F169	15	1	3.33	149	8	2.68	6.02
F239	8	0	0.00	24	3	6.25	6.25
F249a	18	2	5.56	177	3	0.85	6.40
F193	14	2	7.14	140	5	1.79	8.93
F069b	17	2	5.88	170	13	3.82	9.71
F069	23	4	8.70	230	5	1.09	9.78
F011	27	5	9.26	270	7	1.30	10.56
F024	28	6	10.71	280	3	0.54	11.25
F183	26	5	9.62	260	10	1.92	11.54
F158	24	5	10.42	240	7	1.46	11.87
F026b	4	1	12.50	40	0	0.00	12.50
F021	24	6	12.50	240	8	1.67	14.17
F007	21	5	11.90	210	10	2.38	14.29
F153b	21	6	14.29	210	6	1.43	15.71
F015	21	5	11.90	210	22	5.24	17.14
F228	7	2	14.29	70	4	2.86	17.14
F294	27	7	12.96	270	23	4.26	17.22
F293	24	8	16.67	240	17	3.54	20.21
F009	25	9	18.00	250	13	2.60	20.60
F207	6	2	16.67	60	5	4.17	20.83
F015b	26	9	17.31	260	26	5.00	22.31
F068	23	10	21.74	230	11	2.39	24.13
F153	25	11	22.00	207	12	2.90	24.90
F020	28	12	21.43	280	31	5.54	26.96
F316	24	12	25.00	240	23	4.79	29.79
F060	28	14	25.00	270	35	6.48	31.48
F154	28	17	30.36	280	30	5.36	35.71
F308	29	13	22.41	290	84	14.48	36.90
F301	16	5	15.63	160	88	27.50	43.13

Laboratory Performance Rating

Rating	% Score*
Very Good	0 - 5
Good	> 5 - 12.5
Fair	> 12.5 - 30
Poor	> 30

*Sum of Parameters Biased & Results Flagged

Program Name: FPTM

Study Code: 0104

Table 3 Five-Year Historical Laboratory Performance - FP PT for Trace Elements in Water

LAB CODE	% Score Per Study (Sum of Parameters Biased & Results Flagged)										MEDIAN	RATING
	0095 Winter 2009	0096 Summer 2010	0097 Winter 2010	0098 Summer 2011	0099 Winter 2011	0100 Summer 2012	0101 Winter 2012	0102 Summer 2013	0103 Winter 2013	0104 Summer 2014		
F003	4.6	1.8	0.4	0.0	4.3	1.8	0.5	3.6	3.9	1.8	1.8	Very Good
F007			0.0	1.4	6.2	7.6	8.6	39.3	8.1	14.3	7.9	Good
F009	9.8	28.1	13.3	50.6	12.7	17.3	7.5	15.4	17.9	20.6	16.4	Fair
F011	8.7	5.0	7.8	10.0	9.3	10.4	10.2	38.9	28.3	10.6	10.1	Good
F015	31.4	18.1	16.0	20.8	10.2	5.6	17.9	18.3	37.3	17.1	18.0	Fair
F015b									25.7	22.3	24.0	Fair
F020	7.5	3.9	6.2	2.5	26.7	3.3	5.4	8.8	11.4	27.0	6.8	Good
F021	9.7	0.6	10.8	5.6	6.9	6.9	7.5	5.6	7.8	14.2	7.2	Good
F022	0.7	1.2	8.8	4.1	2.2	12.8	3.3	5.2	10.0	3.1	3.7	Very Good
F024	2.3	9.6	2.1	5.2	2.7	5.5	2.5	12.3	18.4	11.3	5.4	Good
F026	5.7	1.3	4.3	5.0	1.0	0.0	0.6	11.3	25.3	4.7	4.5	Very Good
F026b						15.0	14.0		30.1	12.5	14.5	Fair
F060	15.9	8.0	24.4	5.0	8.9	10.0	20.7	17.2	12.4	31.5	14.2	Fair
F068	2.2	0.7	0.2	11.1	9.1	6.7	6.1	3.5	10.2	24.1	6.4	Good
F069		20.9		32.1		5.0		25.9		9.8	20.9	Fair
F069b		11.2		6.5		7.9		10.9		9.7	9.7	Good
F153				1.1	2.9		5.0	0.0		24.9	2.9	Very Good
F153b				4.4	4.3		4.0			15.7	4.4	Very Good
F154	20.7	9.8	9.3	0.5	7.1	11.3	22.9	16.8	26.1	35.7	14.0	Fair
F158	10.8	23.5	9.4	15.4	3.3	23.3	4.8	12.1	22.5	11.9	12.0	Good
F169			0.3				0.3			6.0	0.3	Very Good
F183	19.6	20.8	11.5	25.4	9.3	13.1	7.3	20.9	20.4	11.5	16.4	Fair
F193	1.4	0.0	0.6	0.3	7.9	6.1	0.4	7.5	12.5	8.9	3.7	Very Good
F207	7.2	2.2	11.1	0.0	11.7	21.7	13.1	36.7	34.2	20.8	12.4	Good
F228			9.3		2.9			18.6		17.1	13.2	Fair
F239				14.9		1.9		0.0		6.3	4.1	Very Good
F249			14.2	3.9	13.4	10.1	3.3	33.9	2.3	5.8	7.9	Good

Laboratory Performance Rating

Rating	% Score
Very Good	0 - 5
Good	> 5 - 12.5
Fair	> 12.5 - 30
Poor	> 30

Program Name: FPTM

Study Code: 0104

Table 3 Five-Year Historical Laboratory Performance - FP PT for Trace Elements in Water

LAB CODE	% Score Per Study (Sum of Parameters Biased & Results Flagged)										MEDIAN	RATING
	0095 Winter 2009	0096 Summer 2010	0097 Winter 2010	0098 Summer 2011	0099 Winter 2011	0100 Summer 2012	0101 Winter 2012	0102 Summer 2013	0103 Winter 2013	0104 Summer 2014		
F249a				2.0	0.6	8.2		28.3	14.5	6.4	7.3	Good
F249b							21.0			3.3	12.2	Good
F293			6.3		6.0			17.3		20.2	11.8	Good
F294								19.3	11.1	17.2	17.2	Fair
F301				30.9						43.1	37.0	Poor
F308				38.6						36.9	37.7	Poor
F316										29.8	29.8	Fair
Interlab Median	8.1	6.5	8.8	5.1	6.9	7.9	6.1	16.1	16.2	14.2		

Laboratory Performance Rating

Rating	% Score
Very Good	0 - 5
Good	> 5 - 12.5
Fair	> 12.5 - 30
Poor	> 30

Table 4 Sample Design - FP PT for Trace Elements in Water

Sample Number	Sample Name
1	TELONG-01
2	TM-25.4
3	TM-28.4
4	TMDA-53.3
5	TMDA-62.2
6	TMDA-55D
7	TM-15.3
8	TM-27.4
9	TMDA-51.5
10	TMDA-64.3

Program Name: FPTM **Range of Samples:** 1 to 10 2014-09-12

Study Code: 0104

Table 5 Summary of Interlaboratory Robust Means - FP PT for Trace Elements in Water

Parameters	TM104-1 Sample 1	TM104-2 Sample 2	TM104-3 Sample 3	TM104-4 Sample 4	TM104-5 Sample 5	TM104-6 Sample 6	TM104-7 Sample 7	TM104-8 Sample 8	TM104-9 Sample 9	TM104-10 Sample 10
Aluminum (ug/L)	27.4	30.5	54.7	362	118	578	89.9	89.7	105.1	291
Antimony (ug/L)	0.0671	23.9	3.48	16.7	61.5	208	16.6	1.64	15.0	123.1
Arsenic (ug/L)	1.056	26.9	6.28	34.3	57.2	225	16.4	2.24	16.7	164
Barium (ug/L)	17.5	26.9	16.1	285	114	389	13.7	13.9	72.4	287
Beryllium (ug/L)	0.00904	25.6	3.33	13.1	56.5	187	15.7	1.18	10.09	158
Bismuth (ug/L)	0.0092	19.2	2.03	12.36	51.9	108.8	11.73	0.917	9.42	117.5
Boron (ug/L)	8.67	39.5	18.4	10.14	119	478	27.3	16.2	47.7	281
Cadmium (ug/L)	0.107	23.7	1.93	119	93.6	224	13.1	1.07	25.8	262
Chromium (ug/L)	0.191	23.8	4.82	340	93.9	355	16.7	1.79	64.6	281
Cobalt (ug/L)	0.0595	27.3	3.51	252	95.2	443	15.3	2.06	68.1	246
Copper (ug/L)	17.8	26.6	6.58	310	93.9	384	17.1	6.16	77.2	260
Gallium (ug/L)	0.00329	8.95	12.0	0.0782	32.4	0.0537	0.137	0.0761	9.80	50.5
Iron (ug/L)	42.8	30.9	17.93	323	117.6	485	26.5	10.75	108.0	296
Lead (ug/L)	0.1341	27.0	4.35	349	97.4	595	11.6	2.84	63.3	278
Lithium (ug/L)	0.543	23.5	3.52	10.8	57.7	129	15.2	3.67	19.4	143
Manganese (ug/L)	0.776	25.1	6.88	356	93.8	328	18.2	2.22	78.0	291
Molybdenum (ug/L)	0.145	27.4	3.75	254	100.8	289	14.9	2.42	54.6	288
Nickel (ug/L)	61.8	16.3	9.93	309	97.3	405	17.7	2.50	65.3	249
Rubidium (ug/L)	2.06	19.3	2.32	0.396	15.6	0.122	0.765	0.762	15.3	30.6
Selenium (ug/L)	0.375	29.2	4.61	22.45	52.7	247	16.3	1.87	14.43	158
Silver (ug/L)	0.00958	22.1	3.80	13.7	11.9	2.85	11.16	0.334	12.2	12.6
Strontium (ug/L)	36.3	73.0	72.8	366	147	309	114	114	117	629
Thallium (ug/L)	0.01719	30.2	3.88	15.1	51.2	157	18.2	1.48	20.1	140.1
Tin (ug/L)	0.0535	24.1	3.91	18.4	111	134	15.2	2.44	16.4	283
Titanium (ug/L)	0.550	25.1	8.08	0.386	57.9	175	14.8	1.86	14.1	124
Tungsten (ug/L)	0.0544	10.21	3.90	0.0994	0.0557	0.1286	0.0775	0.0744	0.1111	0.386
Uranium (ug/L)	0.0454	27.3	5.87	32.3	55.6	342	15.5	2.02	28.7	134
Vanadium (ug/L)	0.1445	27.2	3.17	312	115	390	14.3	2.30	46.2	279
Zinc (ug/L)	10.63	45.7	29.7	387	125	565	34.1	16.1	138	320

APPENDIX A

PARAMETER: 13095 Aluminum ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE LAB NO	1= TM104-1 LAB RESULT	2= TM104-2 LAB RESULT	3= TM104-3 LAB RESULT	4= TM104-4 LAB RESULT	5= TM104-5 LAB RESULT	6= TM104-6 LAB RESULT	7= TM104-7 LAB RESULT	8= TM104-8 LAB RESULT	9= TM104-9 LAB RESULT	10= TM104-10 LAB RESULT
F003	28.6	30.1	55.3	353.	115.	564.	91.0	89.9	104.	283.
F007	27.3	31.8	52.7	383.	123.	567.	95.5	92.5	116. WH	316. WH
F009	27.	32.	55.	366.	121.	587.	91.	92.	106.	294.
F011	26.8	29.5	53.8	357.	114.	576.	90.1	88.8	106.	292.
F015	<50.	<50.	<50.	340.	110.	560.	80.	80. WL	100.	280.
F015b	25.4	29.4	53.3	350.	115.	566.	89.9	88.6	104.	284.
F020	27.7	33.	56.6	389. WH	125.	622. WH	94.9	92.9	112.	314. WH
F021	27.	29.	52.	351.	114.	580.	88.	88.	103.	285.
F022	23.6	28.7	51.7	365.	114.	567.	87.8	89.1	104.	286.
F024	28.4	30.2	55.2	370.	118.	592.	91.6	90.2	107.	300.
F026	28.6	33.3	56.3	368.	121.	577.	92.7	91.6	108.	303.
F060	27.	29.	55.	368.	119.	592.	92.	95.	108.	300.
F068	26.	29.	53.	370.	116.	580.	88.	87.	101.	282.
F069	26.7	29.6	54.3	362.	116.	561.	86.6	85.8	98.5	284.
F069b	<25.0	25.7	47.5 WL	370.	113.	584.	82.9	84.3	102.	296.
F153	29.	34.	59.		124.		95.	95.	110.	
F153b	29.	33.	59.	372.	123.	620. WH	97.	96.	108.	307.
F154	25.0	31.0	52.5	366.	116.	587.	87.7	87.9	102.	298.
F158	28.7	30.7	54.9	370.	117.	614. WH	91.7	91.0	106.	301.
F169	26.6	30.9	54.5	335. WL	105. WL	500. AL	83.4	82.7	94.2 WL	292.
F183	25.7	27.7	52.9	352.	114.	571.	88.2	87.9	101.	278.
F193	29.2	29.7	53.8	361.	119.	585.	87.1	86.4	105.	285.
F207	29.	35.	59.	374.	121.	595.	72. AL	94.	106.	300.
F249a	23.6	28.1	52.0	365.	115.	585.	86.2	86.2	102.	289.
F249b	26.1	31.1	55.1	366.	118.	584.	89.7	89.2	104.	289.
F293	66. AH	33.	58.	362.	125.	584.	93.	88.	106.	288.
F294	22.5 WL	26.9	49.9	356.	111.	573.	85.8	85.5	100.	288.
F301	33.3 WH	28.0	56.1	280. AL	123.	469. AL	105. WH	121. AH	128. AH	209. AL
F308	36.1 AH	41.1 AH	64.9 AH	372.	130. WH	579.	102. WH	102. WH	118. WH	301.
F316	<100.	<100.	<100.	340.	<100. AL	555.	<100.	<100.	<100.	258. WL
ASSIGNED VALUE *	27.4	30.5	54.7	362	118	578	89.9	89.7	105.1	291
R-STD DEV *	2.28	2.52	2.86	12.2	5.3	16.5	5.03	4.43	4.61	11.1
ACCEPTABLE LIMITS(+-) *	4.56	5.04	5.72	24.4	10.6	33.0	10.06	8.86	9.22	22.2
WARNING LIMITS(+-) *	4.56- 6.84	5.04- 7.56	5.72- 8.58	24.4- 36.6	10.6- 15.9	33.0- 49.5	10.06- 15.09	8.86- 13.29	9.22- 13.83	22.2- 33.3
ACTION LIMITS(<>) *	6.84	7.56	8.58	36.6	15.9	49.5	15.09	13.29	13.83	33.3
N *	27	28	28	29	29	29	29	29	29	29

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	129.5	12.9			10			ICP-MS
F007	206.5	20.6	WHWH		10			ICP-MS
F009	185.5	18.5			10			ICP-MS
F011	126.5	12.6			10			
F015	20.0	2.8	WL	BIASED LOW	7	-2.5	-6.0845	ICP-AES
F015b	95.0	9.5			10			ICP-MS
F020	248.5	24.8	WH WH WH	BIASED HIGH	10	8.0	-1.9084	ICP-MS
F021	96.0	9.6			10			ICP-AES
F022	89.5	8.9			10			ICP-MS
F024	194.5	19.4			10			ICP-MS
F026	210.0	21.0			10			ICP-AES
F060	191.5	19.1			10			ICP-MS
F068	105.0	10.5			10			ICP-MS
F069	87.0	8.7			10			ICP-MS
F069b	79.5	8.8	WL		9			ICP-AES
F153	175.5	25.0		BIASED HIGH	7	3.6	1.7302	ICP-MS
F153b	252.5	25.2	WH	BIASED HIGH	10	6.2	-1.0123	ICP-AES
F154	127.0	12.7			10			ICP-MS
F158	197.0	19.7	WH		10			ICP-MS
F169	68.5	6.8	WLWLAL WL	BIASED LOW	10	-11.6	6.0389	ICP-AES
F183	71.5	7.1		BIASED LOW	10	-1.6	-2.0669	ICP-MS
F193	138.0	13.8			10			ICP-MS
F207	214.0	21.4	AL		10			ICP-AES
F249a	91.5	9.1			10			ICP-AES
F249b	153.5	15.3			10			ICP-AES
F293	197.0	19.7	AH		10			ICP-MS
F294	53.0	5.3	WL	BIASED LOW	10	-0.1	-4.6383	ICP-MS
F301	164.0	16.4	WH AL ALWHAHAHAL		10			SSA-Horno Grafito-Al
F308	259.0	25.9	AHAHAH WH WHWHWH	BIASED HIGH	10	-1.5	12.5263	ICP-MS
F316	8.5	2.8	AL WL	INSUFFICIENT DATA	3			ICP-AES

OVERALL AVERAGE RANK IS 14.8

PARAMETER: 51095 Antimony ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.0586	23.4	3.31	16.6	60.9	209.	16.0	1.59	14.7	120.
F007	0.09	25.	3.7	17.5	65.6	215.	17.2	1.76	15.5	133.
F009	<1.	24.	3.4	16.	61.	214.	17.	1.7	15.	124.
F011	<0.1	22.1	3.4	16.2	59.1	202.	15.7	1.9 WH	13.9	109. WL
F015	<50.	<50.	<50.	<50.	60.	200.	<50.	<50.	<50.	120.
F015b	0.05	23.7	3.35	16.1	59.1	201.	16.1	1.53	14.6	121.
F020	0.063	22.5	3.36	16.8	61.9	197.	14.7 WL	1.59	14.5	104. WL
F021	0.07	23.7	3.35	16.3	59.8	204.	16.5	1.56	15.0	124.
F022	0.056	24.2	3.57	16.9	60.8	209.	16.8	1.58	15.5	125.
F024	<0.2	23.8	3.4	16.8	62.1	211.	16.7	1.6	15.0	124.
F060	<0.2	24.6	3.8	17.8	65.5	220.	18.0	2.0 AH	15.7	125.
F068	<0.1	25.	3.4	17.	63.	219.	17.	1.6	15.	127.
F069	0.066	25.	3.7	16.9	64.7	63. AL	26.9 AH	1.73	16.5 WH	128.
F153	<0.2	23.	3.2	16.0	59.	201.	15.8	1.6	14.3	117.
F154	<0.20	24.2	3.55	17.2	64.0	219.	17.5	1.71	15.6	135.
F158	<2.	24.2	3.8	17.4	65.2	221.	17.0	<2.	15.4	128.
F193	<0.5	25.0	3.5	16.7	63.1	219.	17.0	1.6	15.7	128.
F249	0.060	23.6	3.34	16.2	60.0	210.	16.5	1.57	14.8	125.
F293	<0.25	23.6	3.32	16.4	59.5	198.	16.5	1.54	14.9	124.
F294	0.3 AH	23.9	3.7	16.7	60.2	210.	15.9	1.9 WH	14.5	121.
F301	<0.15	19.4 AL	2.53 AL	15.2 WL	50.0 AL	195.	12.9 AL	0.64 AL	11.8 AL	95.5 AL
F308	0.07	26.3 WH	3.89	17.2	69.5 WH	228.	16.5	1.60	15.4	130.
F316	<50.0	<50.0	<50.0	<50.0	56.8	195.	<50.0	<50.0	<50.0	115.
ASSIGNED VALUE *	0.0671	23.9	3.48	16.7	61.5	208	16.6	1.64	15.0	123.1
R-STD DEV *	0.01467	1.00	0.231	0.59	3.11	11.1	0.82	0.117	0.62	6.83
ACCEPTABLE LIMITS(+-) *	0.02934	2.00	0.462	1.18	6.22	22.2	1.64	0.234	1.24	13.66
WARNING LIMITS(+-) *	.02934- .0442	.00- 3.00	.462- .693	1.18- 1.77	6.22- 9.33	22.2- 33.3	1.64- 2.46	.234- .351	1.24- 1.86	13.66- 20.49
ACTION LIMITS(<>) *	0.04401	3.00	0.693	1.77	9.33	33.3	2.46	0.351	1.86	20.49
N *	10	21	21	21	23	23	21	20	21	23

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	70.5	7.0			10			ICP-MS
F007	177.0	17.7		BIASED HIGH	10	4.4	0.3514	ICP-MS
F009	106.5	11.8			9			ICP-MS
F011	58.0	6.4	WH WL		9			
F015	21.0	7.0		INSUFFICIENT DATA	3			ICP-AES
F015b	55.5	5.5		BIASED LOW	10	-3.0	0.0813	ICP-MS
F020	62.5	6.2	WL WL		10			ICP-MS
F021	83.0	8.3			10			ICP-MS
F022	118.5	11.8			10			ICP-MS
F024	109.0	12.1			9			ICP-MS
F060	173.0	19.2	AH	BIASED HIGH	9	4.8	-0.0075	ICP-MS
F068	135.0	15.0			9			ICP-MS
F069	153.0	15.3	ALAH WH		10			ICP-MS
F153	42.0	4.6		BIASED LOW	9	-3.7	-0.2062	ICP-MS
F154	157.5	17.5		BIASED HIGH	9	6.4	-0.2416	ICP-MS
F158	143.5	17.9		BIASED HIGH	8	6.0	-0.5630	ICP-MS
F193	143.0	15.8			9			ICP-MS
F249	80.5	8.0			10			ICP-MS
F293	62.5	6.9			9			ICP-MS
F294	108.5	10.8	AH WH		10			ICP-MS
F301	10.5	1.1	ALALWLAL ALALALAL	BIASED LOW	9	-9.1	-2.6762	SAA-Horno Grafito-Sb
F308	169.0	16.9	WH WH	BIASED HIGH	10	9.1	-0.4186	ICP-MS
F316	8.5	2.8		INSUFFICIENT DATA	3			ICP-AES

OVERALL AVERAGE RANK IS 11.0

PARAMETER: 33095 Arsenic ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.985	27.0	6.29	34.1	57.7	223.	16.4	2.20	16.8	165.
F007	1.06	26.7	6.44	34.4	58.2	230.	16.9	2.3	17.3	176.
F009	1.1	28.	6.4	35.	59.	232.	17.	2.4	17.	168.
F011	1.0	26.5	6.2	33.6	56.1	219.	16.0	2.2	16.3	162.
F015	<50.	<50.	<50.	<50.	70. AH	240.	<50.	<50.	<50.	170.
F015b	1.1	28.2	6.5	35.1	59.2	231.	17.3	2.4	17.7	164.
F020	1.05	26.3	6.1	34.	56.6	228.	15.9	2.13	16.7	166.
F021	1.07	25.8	5.96	32.9	55.6	217.	15.6	2.12	16.0	158.
F022	1.03	26.4	6.03	33.4	56.6	221.	15.8	2.09	16.5	159.
F024	1.0	27.0	6.2	34.2	56.8	223.	16.3	2.1	16.6	164.
F026	<15.	25.8	<15.	34.4	55.6	228.	16.3	<15.	16.0	166.
F060	1.1	26.8	6.5	34.9	57.6	229.	16.8	2.3	17.4	166.
F068	1.08	27.1	6.34	33.7	57.6	230.	16.2	2.22	16.6	165.
F069	1.09	27.3	6.41	36.5 WH	58.3	229.	16.6	2.24	17.6	167.
F153	1.16	25.4	6.1	33.	55.	210.	15.6	2.3	16.2	160.
F153b	<10.	25.	<10.	33.	57.	210.	15.7	<10.	16.	161.
F154	1.18 WH	28.7	6.90	37.9 AH	62.6 WH	246. WH	17.7 WH	2.53 WH	18.6 WH	183. AH
F158	<2.	27.5	6.6	35.1	60.1	231.	17.1	2.4	17.3	171.
F169	1.01	27.6	6.42	35.6	58.7	229.	16.5	2.25	17.0	165.
F183	1.08	28.	6.7	35.	57.	227.	17.	2.29	18.	158.
F193	1.1	27.4	6.5	34.1	57.4	227.	16.6	2.3	17.2	162.
F228	<4.0	27.4	4.9 AL	34.1	54.7	227.	17.1	<4.0	15.9	169.
F249	1.06	27.0	6.63	34.6	60.2	232.	16.4	2.26	16.7	171.
F249a	<3.	27.1	6.4	33.8	55.1	220.	16.3	<3.	16.5	161.
F249b	<3.	26.4	5.8	33.5	55.0	222.	15.8	<3.	16.4	162.
F293	1.00	26.3	6.05	34.0	52.9	209.	15.9	2.11	16.2	150. WL
F294	1.	26.4	6.7	34.3	58.6	224.	16.1	2.2	15.8	163.
F301	<0.20 AL	29.4 WH	<0.20 AL	37.6 AH	55.1	156. AL	15.9	<0.20 AL	16.7	133. AL
F308	0.66 AL	27.3	4.15 AL	34.2	58.5	256. AH	18.4 AH	1.89 WL	18.1	179. WH
F316	<5.00	25.	5.26 WL	31.4 WL	53.	212.	16.1	<5.00	15. WL	152.
ASSIGNED VALUE *	1.056	26.9	6.28	34.3	57.2	225	16.4	2.24	16.7	164
R-STD DEV *	0.0590	0.97	0.358	0.99	2.20	9.5	0.62	0.125	0.76	6.1
ACCEPTABLE LIMITS(+-) *	0.1180	1.94	0.716	1.98	4.40	19.0	1.24	0.250	1.52	12.2
WARNING LIMITS(+-) *	.1180- .1770	1.94- 2.91	.716- 1.074	1.98- 2.97	4.40- 6.60	19.0- 28.5	1.24- 1.86	.250- .375	1.52- 2.28	12.2- 18.3
ACTION LIMITS(<>) *	0.1770	2.91	1.074	2.97	6.60	28.5	1.86	0.375	2.28	18.3
N *	21	29	26	29	30	30	29	22	29	30

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	132.0	13.2			10			ICP-MS
F007	190.5	19.0			10			ICP-MS
F009	217.5	21.7			10			ICP-MS
F011	87.0	8.7			10			
F015	83.0	27.6	AH	INSUFFICIENT DATA	3			ICP-AES
F015b	227.0	22.7		BIASED HIGH	10	1.7	0.3330	ICP-MS
F020	112.5	11.2			10			ICP-MS
F021	54.0	5.4		BIASED LOW	10	-3.5	-0.0538	ICP-MS
F022	72.5	7.2			10			ICP-MS
F024	115.0	11.5			10			ICP-MS
F026	88.0	12.5			7			ICP-AES
F060	190.5	19.0			10			ICP-MS
F068	144.5	14.4			10			ICP-MS
F069	196.0	19.6	WH		10			ICP-MS
F153	75.5	7.5			10			ICP-MS
F153b	39.5	5.6		BIASED LOW	7	-5.4	0.9040	ICP-AES
F154	271.0	27.1	WH AHWHWHWHWHWHAH	BIASED HIGH	10	10.1	-0.0486	ICP-MS
F158	215.5	23.9		BIASED HIGH	9	3.1	0.1998	ICP-MS
F169	184.5	18.4			10			ICP-MS
F183	184.5	18.4			10			ICP-MS
F193	171.0	17.1			10			ICP-MS
F228	107.0	13.3	AL		8			ICP-AES
F249	195.0	19.5			10			ICP-MS
F249a	89.5	11.1			8			ICP-AES
F249b	59.0	7.3			8			ICP-AES
F293	52.0	5.2	WL	BIASED LOW	10	-7.9	0.6667	ICP-MS
F294	124.5	12.4			10			ICP-MS
F301	88.5	12.6	ALWHALAH AL AL AL		7			SAA-Horno Grafito-As
F308	176.0	17.6	AL AL AHAHWL WH		10			ICP-MS
F316	27.0	3.3	WLWL WL	BIASED LOW	8	-6.1	-0.4689	ICP-AES

OVERALL AVERAGE RANK IS 14.4

PARAMETER: 56095 Barium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	18.2	27.4	16.7	286.	114.	389.	14.3	14.1	72.4	290.
F007	18.	29.1 AH	16.7	284.	116.	385.	14.2	14.2	75.9 WH	287.
F009	18.	27.	16.	282.	114.	403.	14.	14.	71.	285.
F011	17.4	26.1	15.9	279.	112.	379.	13.2	13.9	70.4	285.
F015	17.	26.	16.	286.	113.	381.	13.	13. WL	71.	289.
F015b	17.3	27.2	16.3	283.	113.	386.	13.9	14.0	72.5	288.
F020	17.5	25.9	15.7	281.	110.	363. WL	13.1	13.7	72.5	278.
F021	18.	28.	17. WH	290.	117.	392.	14.	14.	74.	293.
F022	16.8	26.3	14.9 AL	282.	113.	377.	12.7	13.0 WL	71.5	279.
F024	17.2	27.0	16.2	286.	116.	391.	13.8	13.9	73.0	290.
F026	17.4	26.7	16.1	288.	114.	387.	13.5	13.7	71.9	288.
F060	18.	28.	17. WH	286.	117.	395.	14.	15. AH	76. WH	295.
F068	17.2	26.2	15.9	278.	114.	389.	13.3	13.7	71.8	281.
F069	17.2	26.7	16.2	292.	114.	400.	13.6	13.8	71.7	297.
F069b	17.	26.8	16.2	285.	112.	391.	13.	13.6	70.7	285.
F153	17.7	27.0	16.1		111.		13.6	13.9	73.	
F153b	18.	27.	16.	293.	111.	396.	13.	14.	71.	289.
F154	17.3	26.8	17.0 WH	295.	118.	402.	14.4	15.0 AH	75.9 WH	307. AH
F158	17.3	26.5	16.0	285.	114.	395.	13.5	13.8	70.9	290.
F169	17.6	26.9	16.2	276.	116.	379.	13.4	14.0	73.2	283.
F183	18.5	27.0	16.0	282.	113.	392.	13.6	13.8	71.4	284.
F193	18.1	27.0	16.3	278.	113.	389.	13.9	14.2	72.4	283.
F239		26.4				385.				279.
F249a	17.7	27.0	16.3	285.	114.	387.	13.8	14.2	72.5	291.
F249b	17.3	27.0	16.1	281.	111.	392.	13.6	14.0	71.5	284.
F293	17.4	26.7	16.0	284.	113.	371.	14.0	13.9	72.0	285.
F294	16.9	25.8	15.8	272. WL	112.	367. WL	13.7	13.5	69.1	274. WL
F301	14.9 AL	35.2 AH	14.0 AL	328. AH	109. WL	474. AH	26.1 AH	13.4	75.8	339. AH
F308	17.2	27.4	15.8	310. AH	119. WH	392.	12.7	13.2	75.1	279.
F316	18.	27.9	16.5	283.	115.	389.	14.4	14.4	73.2	284.
ASSIGNED VALUE *	17.5	26.9	16.1	285	114	389	13.7	13.9	72.4	287
R-STD DEV *	0.50	0.71	0.38	5.9	2.4	9.3	0.55	0.35	1.69	6.3
ACCEPTABLE LIMITS(+-) *	1.00	1.42	0.76	11.8	4.8	18.6	1.10	0.70	3.38	12.6
WARNING LIMITS(+-) *	1.00- 1.50	1.42- 2.13	.76- 1.14	11.8- 17.7	4.8- 7.2	18.6- 27.9	1.10- 1.65	.70- 1.05	3.38- 5.07	12.6- 18.9
ACTION LIMITS(<>) *	1.50	2.13	1.14	17.7	7.2	27.9	1.65	1.05	5.07	18.9
N *	29	30	29	28	29	29	29	29	29	29

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	216.5	21.6			10			ICP-MS
F007	217.5	21.7	AH WH		10			ICP-MS
F009	169.0	16.9			10			ICP-MS
F011	80.0	8.0			10			
F015	87.0	8.7	WL		10			ICP-AES
F015b	164.0	16.4			10			ICP-MS
F020	65.5	6.5	WL	BIASED LOW	10	-4.8	1.4296	ICP-MS
F021	240.0	24.0	WH	BIASED HIGH	10	1.2	0.6757	ICP-AES
F022	51.0	5.1	AL WL	BIASED LOW	10	-2.4	0.0893	ICP-MS
F024	180.0	18.0			10			ICP-MS
F026	140.5	14.0			10			ICP-AES
F060	254.5	25.4	WH AHWH	BIASED HIGH	10	1.3	0.8957	ICP-MS
F068	89.0	8.9			10			ICP-MS
F069	166.5	16.6			10			ICP-MS
F069b	102.5	10.2			10			ICP-AES
F153	105.5	15.0			7			ICP-MS
F153b	155.5	15.5			10			ICP-AES
F154	244.5	24.4	WH AHWHAH	BIASED HIGH	10	4.3	-0.0363	ICP-MS
F158	135.0	13.5			10			ICP-MS
F169	140.5	14.0			10			ICP-MS
F183	141.5	14.1			10			ICP-MS
F193	164.5	16.4			10			ICP-MS
F239	19.5	6.5		INSUFFICIENT DATA	3			ICP-OES
F249a	190.0	19.0			10			ICP-AES
F249b	128.5	12.8			10			ICP-AES
F293	128.0	12.8			10			ICP-MS
F294	41.5	4.1	WL WL WL	BIASED LOW	10	-5.3	0.9607	ICP-MS
F301	178.0	17.8	ALAHALAHWLAHAH AH		10			SAA-Horno Grafito-Ba
F308	146.5	14.6	AHWH		10			ICP-MS
F316	208.5	20.8			10			ICP-AES

OVERALL AVERAGE RANK IS 15.0

PARAMETER: 04095 Beryllium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.00721	24.7	3.25	12.3	54.4	185.	15.2	1.15	9.76	156.
F007	0.007	26.1	3.32	13.9	59.1	185.	16.	1.2	10.6	170.
F009	<1.	27.	3.5	13.	57.	191.	16.	1.3	10.	159.
F011	<0.1	25.3	3.2	13.0	55.8	185.	15.7	1.1	10.2	161.
F015	<1.	25.	3.	14.	56.	190.	16.	1.	10.	157.
F015b	<0.002 WL	25.7	3.38	13.0	56.6	196.	16.3	1.31	10.7	163.
F020	<0.010	24.9	3.26	13.3	59.2	182.	15.7	1.18	10.1	160.
F021	0.01	26.9	3.54	13.4	58.2	189.	16.5	1.23	10.5	161.
F022	<0.01	24.8	3.10	12.5	56.5	180.	15.1	1.07	9.40	157.
F024	<0.1	24.8	3.4	12.8	55.9	182.	15.3	1.2	10.0	156.
F026b	<5.	26.0	<5.	13.4	56.7	187.	15.8	<5.	10.1	157.
F060	<0.1	24.0	3.3	12.9	55.9	184.	15.5	1.3	10.1	157.
F068	0.02 AH	25.7	3.25	13.	55.	194.	16.	1.17	10.1	154.
F069	<0.020	26.2	3.44	13.2	58.7	187.	16.	1.21	10.1	158.
F069b	<0.190	26.7	3.41	13.7	57.6	189.	16.1	1.15	10.3	158.
F153	<0.2	23.8	3.2	11.8	50. WL	191.	14.7	1.24	9.3	148.
F153b	<5.	24.	<5.	11.9	51. WL	192.	14.6	<5.	9.4	146.
F154	<0.20	26.7	3.55	13.4	59.7	222. AH	15.9	1.31	11.0	180. WH
F158	<2.	26.9	3.6	13.9	59.5	205. WH	16.3	<2.	10.6	170.
F183	<2.50	27.0	3.64	13.7	58.1	191.	16.5	1.25	10.6	155.
F249	0.010	26.4	3.55	12.7	57.0	192.	16.4	1.27	10.3	171.
F249a	<0.02	24.9	3.26	13.0	55.1	181.	15.3	1.16	10.0	154.
F249b	<0.02	26.2	3.39	13.4	56.6	188.	16.0	1.16	10.2	159.
F293	<0.025	23.7	3.15	12.4	51.5	167. WL	14.5	1.07	9.13	135. AL
F294	<0.1	22.6 WL	3.1	11.7 WL	50.6 WL	171. WL	14.6	1.1	9.4	148.
F308	0.006	27.6	3.27	14.5 WH	61.5	118. AL	16.1	1.01	10.6	166.
F316	<3.00	25.5	3.25	12.9	55.5	183.	15.7	<3.00	9.78	155.
ASSIGNED VALUE *	0.00904	25.6	3.33	13.1	56.5	187	15.7	1.18	10.09	158
R-STD DEV *	0.003335	1.31	0.184	0.68	2.51	6.8	0.61	0.098	0.500	7.4
ACCEPTABLE LIMITS(+-) *	0.006670	2.62	0.368	1.36	5.02	13.6	1.22	0.196	1.000	14.8
WARNING LIMITS(+-) *	.006670- .012	.62- 3.93	.368- .552	1.36- 2.04	5.02- 7.53	13.6- 20.4	1.22- 1.83	.196- .294	1.000- 1.500	14.8- 22.2
ACTION LIMITS(<>) *	0.010005	3.93	0.552	2.04	7.53	20.4	1.83	0.294	1.500	22.2
N *	6	27	25	27	27	27	27	23	27	27

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	66.0	6.6		BIASED LOW	10	-1.0	-0.3807	ICP-MS
F007	170.5	17.0			10			ICP-MS
F009	161.0	17.8			9			ICP-MS
F011	105.0	11.6			9			
F015	108.5	12.0			9			ICP-AES
F015b	176.0	19.5	WL		9			ICP-MS
F020	123.5	13.7			9			ICP-MS
F021	190.0	19.0			10			ICP-MS
F022	58.0	6.4			9			ICP-MS
F024	89.5	9.9			9			ICP-MS
F026b	104.5	14.9			7			ICP-AES
F060	102.5	11.3			9			ICP-MS
F068	119.5	11.9	AH		10			ICP-MS
F069	151.0	16.7			9			ICP-MS
F069b	161.5	17.9			9			ICP-AES
F153	58.0	6.4	WL		9			ICP-MS
F153b	41.5	5.9	WL	BIASED LOW	7	-0.6	-2.0114	ICP-AES
F154	207.0	23.0	AH WH	BIASED HIGH	9	17.5	-2.1421	ICP-MS
F158	194.5	24.3	WH	BIASED HIGH	8	9.1	-0.7845	ICP-MS
F183	188.5	20.9		BIASED HIGH	9	0.2	0.5698	ICP-MS
F249	183.5	18.3			10			ICP-MS
F249a	77.0	8.5			9			ICP-AES
F249b	145.5	16.1			9			ICP-AES
F293	23.5	2.6	WL AL	BIASED LOW	9	-12.5	0.6478	ICP-MS
F294	25.0	2.7	WL WLWLWL	BIASED LOW	9	-7.6	-0.2940	ICP-MS
F308	165.0	16.5	WH AL		10			ICP-MS
F316	72.0	9.0			8			ICP-AES

OVERALL AVERAGE RANK IS 13.4

PARAMETER: 83095 Bismuth ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.0102	21.0	2.24	13.3	54.6	112.	12.6	0.898	10.4	122.
F009	<2.	17.	1.8	11.	47.	106.	11.	<2.	8.6	112.
F011	<0.2	14.8	1.9	10.0	37.3 AL	80.9 AL	9.5	1.6 AH	7.8	88.9 WL
F015b	<0.02	13.3 WL	1.66	8.89 WL	39.3 WL	99.5	8.35 WL	0.72	6.98	107.
F020	0.007	22.4	2.16	11.7	54.9	114.	13.1	0.852	11.	126.
F022	0.008	21.1	1.57	13.6	56.1	110.	12.7	0.681	9.88	123.
F024	<1.	19.2	2.1	12.3	51.2	105.	11.5	<1.	9.5	115.
F060	<0.5	21.7	2.4	14.7	56.7	125. WH	13.8	1.2	11.0	138.
F154	<0.20	19.7	2.05	13.0	55.7	116.	11.5	0.93	9.79	127.
F183	<2.00	17.6	2.24	12.8	49.4	108.	10.6	<2.00	8.45	128.
F249	0.015	19.2	1.90	12.3	54.3	111.	11.2	0.80	9.18	120.
F294	<0.3	19.5	2.2	12.5	51.3	103.	12.6	0.96	9.7	115.
F308	0.006	21.4	2.17	13.4	54.1	112.	13.0	0.91	9.55	12.0 AL
ASSIGNED VALUE *	0.0092	19.2	2.03	12.36	51.9	108.8	11.73	0.917	9.42	117.5
R-STD DEV *	0.00406	2.70	0.270	1.558	4.83	7.17	1.568	0.2025	1.230	13.50
ACCEPTABLE LIMITS(+-) *	-	5.40	0.540	3.116	9.66	14.34	3.136	0.4050	2.460	27.00
WARNING LIMITS(+-) *	-	5.40- 8.10	.540- .810	3.116- 4.674	9.66- 14.49	14.34- 21.51	3.136- 4.704	.4050- .6075	2.460- 3.690	27.00- 40.50
ACTION LIMITS(<>) *	-	8.10	0.810	4.674	14.49	21.51	4.704	0.6075	3.690	40.50
N *	5	13	13	13	13	13	13	10	13	13

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	85.5	8.5			10			ICP-MS
F009	29.0	3.6			8			ICP-MS
F011	26.5	2.9	ALAL AH WL	BIASED LOW	9	-25.7	0.5263	
F015b	15.0	1.6	WL WLWL WL	BIASED LOW	9	-8.0	-2.3911	ICP-MS
F020	86.5	8.6			10			ICP-MS
F022	75.0	7.5			10			ICP-MS
F024	45.0	5.6			8			ICP-MS
F060	111.5	12.3	WH	BIASED HIGH	9	15.9	-0.2772	ICP-MS
F154	79.5	8.8			9			ICP-MS
F183	51.5	6.4			8			ICP-MS
F249	56.5	5.6			10			ICP-MS
F294	63.0	7.0			9			ICP-MS
F308	73.5	7.3	AL		10			ICP-MS

OVERALL AVERAGE RANK IS 6.7

PARAMETER: 05095 Boron ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	8.19	39.1	17.9	9.93	121.	483.	26.4	15.5	47.7	281.
F009	<20.	34. WL	<20.	<20.	105. WL	445.	31.	<20.	42. WL	253.
F011	7.6	36.2	17.2	10.4	111.	439.	29.8	18.1	48.1	266.
F015	10.	40.	20.	10.	120.	490.	30.	20. WH	50.	280.
F015b	10.	40.	20.	10.	120.	490.	30.	20. WH	50.	280.
F020	<50.	<50.	<50.	<250.	<250.	<500.	<50.	<50.	<50.	<500.
F021	<10.	40.	18.	<10.	121.	482.	25.	15.	47.	287.
F022	7.34	40.0	17.8	9.26	118.	466.	25.6	17.2	48.2	270.
F024	<10.	36.1	16.1 WL	<10.	116.	468.	28.4	15.0	45.5	279.
F026	9.75	40.5	18.9	10.3	119.	478.	28.0	17.0	48.2	281.
F060	8.	40.	18.	8. AL	121.	497.	27.	15.	49.	291.
F069	8.61	40.8	18.2	9.87	118.	454.	26.4	15.6	48.4	268.
F069b	8.64	42.1	19.3	10.7	125.	492.	27.8	16.9	49.6	288.
F153	8.2	41.	18.	10.8	114.		25.1	15.5	44.	
F153b	<10.	40.	19.	11.	117.	480.	25.4	15.9	45.	291.
F154	<10.	40.	18.	10.	124.	520.	29.	17.	49.	309.
F158	8.6	39.8	18.7	10.4	119.	458.	26.2	16.6	47.3	279.
F183	7.31	42.2	18.8	9.16	130.	553. WH	28.9	15.2	49.6	319. WH
F193	8.3	37.9	17.1	9.8	123.	498.	25.0	14.3	46.3	282.
F239		35.7				456.				277.
F293	10.6	39.1	18.6	10.8	112.	490.	25.1	15.4	45.1	267.
F308	9.15	45.3 WH	21.4 WH	10.9	136. AH	500.	26.9	16.1	51.8	305.
F316	<100.	<100.	<100.	<100.	113.	441.	<100.	<100.	<100.	263.
ASSIGNED VALUE *	8.67	39.5	18.4	10.14	119	478	27.3	16.2	47.7	281
R-STD DEV *	1.115	2.22	1.09	0.678	5.6	26.3	2.16	1.36	2.34	14.2
ACCEPTABLE LIMITS(+-) *	2.230	4.44	2.18	1.356	11.2	52.6	4.32	2.72	4.68	28.4
WARNING LIMITS(+-) *	2.230- 3.345	4.44- 6.66	2.18- 3.27	1.356- 2.034	11.2- 16.8	52.6- 78.9	4.32- 6.48	2.72- 4.08	4.68- 7.02	28.4- 42.6
ACTION LIMITS(<>) *	3.345	6.66	3.27	2.034	16.8	78.9	6.48	4.08	7.02	42.6
N *	15	21	19	17	21	21	20	19	20	21

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	87.0	8.7			10			ICP-MS
F009	27.0	4.5	WL WL WL	BIASED LOW	6	-7.4	-1.4474	ICP-MS
F011	71.5	7.1			10			
F015	143.5	14.3	WH		10			ICP-AES
F015b	143.5	14.3	WH		10			ICP-AES
F020	0.0	0.0		INSUFFICIENT DATA	0			ICP-MS
F021	72.0	9.0			8			ICP-AES
F022	76.0	7.6			10			ICP-MS
F024	48.5	6.0	WL		8			ICP-MS
F026	123.0	12.3			10			ICP-AES
F060	102.5	10.2	AL		10			ICP-MS
F069	89.0	8.9			10			ICP-MS
F069b	150.5	15.0			10			ICP-AES
F153	64.0	8.0			8			ICP-MS
F153b	96.5	10.7			9			ICP-AES
F154	130.5	14.5			9			ICP-MS
F158	91.5	9.1			10			ICP-MS
F183	134.5	13.4	WH WH		10			ICP-MS
F193	75.5	7.5			10			ICP-MS
F239	14.0	4.6		INSUFFICIENT DATA	3			ICP-OES
F293	81.5	8.1			10			ICP-MS
F308	167.0	16.7	WHWH AH	BIASED HIGH	10	5.4	2.0173	ICP-MS
F316	8.0	2.6		INSUFFICIENT DATA	3			ICP-AES

OVERALL AVERAGE RANK IS 10.2

PARAMETER: 48095 Cadmium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.107	23.4	1.92	115.	92.6	223.	13.1	1.06	25.5	255.
F007	0.108	23.6	1.9	121.	95.6	215.	13.2	1.06	26.9	269.
F009	<1.	24.	1.9	118.	94.	221.	13.	1.1	26.	254.
F011	0.11	23.6	1.97	120.	93.1	225.	13.2	1.07	25.7	264.
F015	<5.	23.	<5.	119.	94.	229.	13.	<5.	25.	265.
F015b	0.1	24.6	1.98	123.	96.4	229.	13.5	1.07	26.8	266.
F020	0.111	24.1	1.97	127.	98.3	231.	13.1	1.09	27.3	268.
F021	0.11	22.9	1.87	117.	91.9	218.	12.8	1.05	25.3	254.
F022	0.094	23.5	1.96	113.	92.5	211.	13.3	1.07	25.3	247.
F024	0.1	22.9	1.9	116.	91.1	217.	12.9	1.0	25.2	254.
F026	<1.	23.6	2.02	118.	93.2	220.	13.0	1.18 WH	25.4	256.
F060	0.11	24.1	1.90	119.	93.9	220.	13.3	1.10	25.5	256.
F068	0.11	23.8	1.94	122.	94.8	231.	13.2	1.06	26.	259.
F069	0.125	23.8	1.92	120.	95.	230.	13.3	1.07	26.4	279.
F069b	<0.60	23.8	1.03 AL	121.	94.7	226.	12.8	<0.60 AL	25.3	260.
F153	<0.2	22.7	1.8	112.	88. WL		12.5	1.0	25.1	
F153b	<2.	22.6	<2.	113.	89.	227.	12.4	<2.	25.2	260.
F154	0.116	23.8	2.06	124.	96.5	231.	13.8	1.19 WH	26.7	276.
F158	<1.	24.9	2.0	126.	98.8	236.	13.9 WH	1.1	27.4	267.
F169	0.10	23.0	1.89	116.	93.1	212.	12.9	1.05	25.4	258.
F183	<0.25	24.	2.0	117.	94.	228.	13.2	1.10	25.	251.
F193	<0.4	23.3	2.0	120.	87.0 WL	229.	13.0	1.0	24.6	261.
F228	<0.3	23.2	1.7 AL	114.	92.4	219.	13.2	0.99	25.2	257.
F239		25.4 WH				233.				273.
F249	0.10	23.5	1.88	123.	92.7	229.	12.8	1.05	25.0	269.
F249a	<1.	24.3	1.99	121.	95.7	226.	13.5	1.09	26.4	264.
F249b	<1.	24.5	1.90	121.	95.3	229.	13.6	1.08	26.3	264.
F293	0.12	23.1	1.89	119.	92.4	214.	12.9	1.10	25.9	257.
F294	0.1	23.5	2.	114.	92.1	217.	12.6	1.1	24.7	258.
F301	0.75 AH	23.8	1.87	124.	94.1	210.	15.8 AH	2.26 AH	29.0 AH	286. WH
F308	0.04 AL	25.4 WH	1.97	133. WH	104. AH	237.	12.9	0.96 WL	27.6	270.
F316	<5.00	22.8	<5.00	110.	88.1 WL	207.	12.7	<5.00	24.4	239. WL
ASSIGNED VALUE *	0.107	23.7	1.93	119	93.6	224	13.1	1.07	25.8	262
R-STD DEV *	0.0106	0.69	0.069	4.8	2.58	8.7	0.37	0.050	0.96	8.6
ACCEPTABLE LIMITS(+-) *	0.0212	1.38	0.138	9.6	5.16	17.4	0.74	0.100	1.92	17.2
WARNING LIMITS(+-) *	.0212- .0318	1.38- 2.07	.138- .207	9.6- 14.4	5.16- 7.74	17.4- 26.1	.74- 1.11	.100- .150	1.92- 2.88	17.2- 25.8
ACTION LIMITS(<>) *	0.0318	2.07	0.207	14.4	7.74	26.1	1.11	0.150	2.88	25.8
N *	18	32	28	31	31	31	31	27	31	31

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	115.5	11.5			10			ICP-MS
F007	171.0	17.1			10			ICP-MS
F009	138.5	15.3			9			ICP-MS
F011	163.5	16.3			10			
F015	101.0	14.4			7			ICP-AES
F015b	217.5	21.7			10			ICP-MS
F020	230.5	23.0			10			ICP-MS
F021	76.0	7.6		BIASED LOW	10	-2.8	0.2201	ICP-MS
F022	100.0	10.0			10			ICP-MS
F024	69.0	6.9		BIASED LOW	10	-3.1	0.1200	ICP-MS
F026	143.5	15.9	WH		9			ICP-AES
F060	161.0	16.1			10			ICP-MS
F068	185.0	18.5			10			ICP-MS
F069	208.5	20.8			10			ICP-MS
F069b	113.5	14.1	AL AL		8			ICP-AES
F153	22.0	3.1	WL	BIASED LOW	7	-6.1	0.2599	ICP-MS
F153b	52.0	7.4			7			ICP-AES
F154	254.5	25.4	WH	BIASED HIGH	10	4.5	-0.3230	ICP-MS
F158	247.0	27.4	WH	BIASED HIGH	9	3.3	0.8296	ICP-MS
F169	88.5	8.8			10			ICP-MS
F183	145.0	16.1			9			ICP-MS
F193	112.0	12.4	WL		9			ICP-MS
F228	76.5	8.5	AL		9			ICP-AES total
F239	88.5	29.5	WH	INSUFFICIENT DATA	3			ICP-OES
F249	127.0	12.7			10			ICP-MS
F249a	199.5	22.1			9			ICP-AES
F249b	191.5	21.2			9			ICP-AES
F293	120.5	12.0			10			ICP-MS
F294	102.5	10.2			10			ICP-MS
F301	212.0	21.2	AH AHAHAHWH		10			SAA-Horno Grafito-Cd
F308	212.0	21.2	ALWH WHAH WL		10			ICP-MS
F316	14.0	2.0	WL WL	BIASED LOW	7	-8.7	1.3082	ICP-AES

OVERALL AVERAGE RANK IS 15.3

PARAMETER: 24095 Chromium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.189	24.1	4.80	340.	94.7	358.	16.8	1.70	65.0	281.
F007	0.185	23.7	4.77	339.	95.8	351.	16.5	1.81	65.8	282.
F009	<1.	25.	4.9	345.	98.	363.	18. WH	2.0	68.	283.
F011	0.2	23.6	4.8	327.	92.3	341.	16.4	1.7	64.2	275.
F015	<5.	23.	5.	354.	96.	356.	17.	<5.	65.	285.
F015b	<0.2	24.1	4.9	339.	92.9	356.	16.8	2.2 WH	64.6	273.
F020	0.18	24.7	4.91	341.	95.2	360.	17.	1.74	64.3	291.
F021	0.17	23.8	4.81	344.	94.0	360.	16.5	1.74	62.6	278.
F022	0.213	23.1	4.79	337.	92.2	348.	16.8	1.91	65.2	274.
F024	<0.5	23.6	4.7	353.	92.9	369.	16.4	1.7	64.0	290.
F026	<1.	24.4	5.24 AH	349.	94.8	361.	17.0	2.21 WH	64.8	285.
F060	<0.5	24.5	5.1 WH	349.	97.5	366.	17.6	1.9	68.4	282.
F068	<0.2	22.	4.4 AL	319. WL	85. WL	303. AL	15. WL	1.6	58. WL	266.
F069	<0.30	22.7	4.61	332.	92.8	339.	15.8	1.7	64.8	274.
F069b	<0.60	23.4	4.71	332.	90.3	338.	16.6	1.57	61.9	262.
F153	<0.2	23.4	4.8		92.		16.2	1.8	63.	
F153b	<2.	23.5	4.7	348.	93.	379.	16.3	<2.	64.	288.
F154	<2.0	24.8	4.8	358.	98.2	372.	17.3	<2.0	69.4 WH	298.
F158	<2.	23.3	4.9	336.	92.8	346.	16.4	<2.	63.8	277.
F169	0.18	23.5	4.71	333.	93.7	347.	16.3	1.70	64.0	282.
F183	<1.00	23.	4.8	328.	93.	355.	17.	1.7	64.	275.
F193	<1.0	24.1	4.8	329.	91.8	344.	16.2	1.7	62.3	274.
F207	<2.	25.	5.	350.	98.	371.	17.	2.	71. WH	301. WH
F228	<0.7	24.6	5.1 WH	346.	97.2	364.	17.7	2.0	67.5	290.
F239		25.9 WH				369.				299.
F249	0.18	24.8	4.93	354.	99.1	373.	17.3	1.83	66.6	296.
F249a	<1.	23.8	4.77	339.	93.7	354.	16.7	1.92	64.9	280.
F249b	<1.	24.0	4.83	344.	93.3	358.	16.5	1.72	64.7	280.
F293	<0.30	23.8	4.73	341.	92.2	341.	16.8	1.68	64.3	278.
F294	<0.3	23.3	4.8	338.	91.7	355.	16.3	1.8	62.6	270.
F301	<0.05 AL	21.6 WL	3.80 AL	333.	73.7 AL	313. AL	16.3	0.99 AL	62.5	279.
F308	0.33 AH	19.4 AL	4.73	309. AL	82.7 AL	320. WL	12.8 AL	1.71	56.0 AL	251. AL
F316	<10.0	26.7 AH	<10.0	349.	98.4	359.	19.9 AH	<10.0	67.5	285.
ASSIGNED VALUE *	0.191	23.8	4.82	340	93.9	355	16.7	1.79	64.6	281
R-STD DEV *	0.0187	0.92	0.136	10.2	3.13	13.9	0.57	0.160	2.24	9.8
ACCEPTABLE LIMITS(+-) *	0.0374	1.84	0.272	20.4	6.26	27.8	1.14	0.320	4.48	19.6
WARNING LIMITS(+-) *	.0374- .0561	1.84- 2.76	.272- .408	20.4- 30.6	6.26- 9.39	27.8- 41.7	1.14- 1.71	.320- .480	4.48- 6.72	19.6- 29.4
ACTION LIMITS(<>) *	0.0561	2.76	0.408	30.6	9.39	41.7	1.71	0.480	6.72	29.4
N *	9	33	31	31	32	32	32	27	32	32

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	166.5	16.6			10			ICP-MS
F007	157.5	15.7			10			ICP-MS
F009	232.0	25.7	WH	BIASED HIGH	9	1.4	1.0254	ICP-MS
F011	99.5	9.9			10			
F015	173.5	21.6			8			ICP-AES
F015b	156.5	17.3	WH		9			ICP-MS
F020	199.0	19.9			10			ICP-MS
F021	147.5	14.7			10			ICP-MS
F022	129.0	12.9			10			ICP-MS
F024	145.0	16.1			9			ICP-MS
F026	218.5	24.2	AH WH		9			ICP-AES
F060	230.5	25.6	WH	BIASED HIGH	9	2.2	0.5411	ICP-MS
F068	21.0	2.3	ALWLWLALWL WL	BIASED LOW	9	-9.5	0.5069	ICP-MS
F069	67.5	7.5		BIASED LOW	9	-3.4	0.6001	ICP-MS
F069b	54.5	6.0		BIASED LOW	9	-4.4	0.1073	ICP-AES
F153	62.5	10.4			6			ICP-MS
F153b	131.5	16.4			8			ICP-AES
F154	224.0	28.0	WH	BIASED HIGH	8	5.3	0.0813	ICP-MS
F158	93.0	11.6			8			ICP-MS
F169	105.0	10.5			10			ICP-MS CRI
F183	108.5	12.0			9			ICP-MS
F193	80.5	8.9			9			ICP-MS
F207	254.5	28.2	WHWH	BIASED HIGH	9	4.4	0.7276	ICP-AES
F228	236.5	26.2	WH	BIASED HIGH	9	2.2	0.6571	ICP-AES total
F239	90.5	30.1	WH	INSUFFICIENT DATA	3			ICP-OES
F249	251.5	25.1		BIASED HIGH	10	4.8	-0.1130	ICP-MS
F249a	149.5	16.6			9			ICP-AES
F249b	156.5	17.3			9			ICP-AES
F293	110.5	12.2			9			ICP-MS
F294	90.5	10.0			9			ICP-MS
F301	42.0	4.6	ALWLAL ALAL AL	BIASED LOW	9	-5.4	-1.4998	SAA-Horno Grafito-Cr
F308	39.5	3.9	AHAL ALALWLAL ALAL	BIASED LOW	10	-9.5	-1.1869	ICP-MS
F316	191.5	27.3	AH AH	BIASED HIGH	7	0.9	2.8685	ICP-AES

OVERALL AVERAGE RANK IS 15.8

PARAMETER: 27095 Cobalt ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.0535	27.3	3.53	247.	95.1	434.	15.3	2.03	68.1	242.
F007	0.02	27.	3.3	249.	95.7	438.	15.1	2.07	68.6	250.
F009	<1.	29.	3.7	256.	99.	451.	16.	2.2	71.	249.
F011	<0.1	26.7	3.3	243.	93.6	425.	14.9	1.9	68.3	242.
F015	<5.	28.	<5.	260.	98.	460.	15.	<5.	69.	251.
F015b	0.041	27.8	3.58	254.	95.0	454.	15.4	2.11	69.0	243.
F020	0.054	28.	3.56	250.	95.6	447.	15.4	2.04	67.1	252.
F021	0.05	26.9	3.43	248.	94.3	445.	14.8	1.98	65.3	241.
F022	0.0578	28.1	3.51	251.	94.8	435.	16.2	2.01	69.1	238.
F024	<0.1	26.8	3.5	259.	92.6	447.	15.0	2.1	66.9	254.
F026	<1.	27.7	3.77	254.	96.6	448.	15.5	2.11	68.9	247.
F060	<0.1	27.5	3.6	261.	98.8	465.	15.8	2.2	70.9	255.
F068	0.06	26.4	3.37	235. WL	91.7	441.	14.8	2.	65.1	231. WL
F069	0.066	26.3	3.41	241.	95.4	423.	14.6	1.99	68.5	240.
F069b	<0.800	27.3	2.76 AL	259.	94.3	452.	14.4	1.7 AL	67.2	248.
F153	<0.2	26.0	2.0 AL		95.		15.4	2.0	68.	
F153b	<2.	25.9	<2. AL	251.	94.	450.	15.2	<2.	68.	251.
F154	<0.20	27.9	3.53	258.	98.1	459.	15.7	2.13	70.9	257.
F158	<2.	27.0	3.6	251.	95.2	438.	15.5	2.1	67.7	247.
F183	<2.50	27.9	3.67	254.	96.9	442.	15.3	2.06	67.7	243.
F249	0.05	26.8	3.48	248.	95.9	444.	15.1	2.05	66.9	248.
F249a	<3.	28.2	4.05 WH	251.	98.1	458.	16.6 WH	<3.	71.5	252.
F249b	<1.	28.6	3.36	257.	96.9	460.	16.2	2.02	71.0	252.
F293	0.082	27.8	3.52	253.	93.2	431.	15.6	2.08	68.6	250.
F294	0.1	27.5	3.6	251.	95.4	428.	14.8	2.2	67.7	241.
F301	2.84 AH	28.9	4.55 AH	256.	88.7 WL	355. AL	16.6 WH	3.15 AH	65.3	224. WL
F308	0.05	26.8	3.47	246.	92.6	441.	15.1	1.94	66.0	240.
F316	<10.0	25.5	<10.0	229. AL	88.6 WL	412. WL	14.2	<10.0	63.2 WL	225. WL
ASSIGNED VALUE *	0.0595	27.3	3.51	252	95.2	443	15.3	2.06	68.1	246
R-STD DEV *	0.02095	0.93	0.179	6.5	2.40	14.3	0.61	0.100	2.07	7.3
ACCEPTABLE LIMITS(+-) *	0.04190	1.86	0.358	13.0	4.80	28.6	1.22	0.200	4.14	14.6
WARNING LIMITS(+-) *	.04190- .0621	.86- 2.79	.358- .537	13.0- 19.5	4.80- 7.20	28.6- 42.9	1.22- 1.83	.200- .300	4.14- 6.21	14.6- 21.9
ACTION LIMITS(<>) *	0.06285	2.79	0.537	19.5	7.20	42.9	1.83	0.300	6.21	21.9
N *	13	28	25	27	28	27	28	24	28	27

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	110.0	11.0			10			ICP-MS
F007	115.5	11.5			10			ICP-MS
F009	208.0	23.1		BIASED HIGH	9	1.5	0.8154	ICP-MS
F011	59.0	6.5		BIASED LOW	9	-3.8	1.0749	
F015	148.5	21.2			7			ICP-AES
F015b	158.5	15.8			10			ICP-MS
F020	149.0	14.9			10			ICP-MS
F021	74.0	7.4			10			ICP-MS
F022	136.5	13.6			10			ICP-MS
F024	121.0	13.4			9			ICP-MS
F026	168.5	18.7			9			ICP-AES
F060	211.0	23.4		BIASED HIGH	9	4.7	-0.6961	ICP-MS
F068	53.0	5.3	WL WL	BIASED LOW	10	-2.3	-1.5995	ICP-MS
F069	74.0	7.4			10			ICP-MS
F069b	98.0	10.8	AL AL		9			ICP-AES
F153	53.5	8.9	AL		6			ICP-MS
F153b	89.0	12.7	AL		7			ICP-AES
F154	201.0	22.3		BIASED HIGH	9	3.6	-0.1575	ICP-MS
F158	128.5	14.2			9			ICP-MS
F183	145.0	16.1			9			ICP-MS
F249	108.5	10.8			10			ICP-MS
F249a	189.0	23.6	WH WH	BIASED HIGH	8	2.5	0.0276	ICP-AES
F249b	185.0	20.5			9			ICP-AES
F293	143.5	14.3			10			ICP-MS
F294	126.5	12.6			10			ICP-MS
F301	144.5	14.4	AH AH WLALWHAH WL		10			SAA-Horno Grafito-Co
F308	66.5	6.6		BIASED LOW	10	-1.0	-0.8017	ICP-MS
F316	9.0	1.2	ALWLWL WLWL	BIASED LOW	7	-7.5	-0.4302	ICP-AES

OVERALL AVERAGE RANK IS 13.6

PARAMETER: 29095 Copper ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	18.4	26.9	6.41	308.	93.6	385.	17.3	6.07	77.3	263.
F007	18.1	26.9	6.8	321.	96.7	397.	17.7	6.54	78.9	281. WH
F009	19.	28.	6.3	323.	98.	398.	18.	6.0	80.	268.
F011	17.7	26.3	6.5	303.	93.4	375.	17.0	6.1	76.7	259.
F015	18.	26.	8. AH	312.	96.	398.	19. WH	7.	77.	262.
F015b	17.0	26.4	6.80	314.	94.7	390.	17.7	6.13	75.3	260.
F020	18.6	28.1	6.93	316.	99.3	395.	17.5	6.35	78.	275.
F021	17.4	26.0	6.39	312.	91.7	383.	16.4	5.89	73.4	254.
F022	16.5	27.2	6.52	312.	93.7	384.	15.5	6.16	79.3	259.
F024	16.8	24.9	5.9	290. WL	88.0	363.	16.0	5.5	72.5	243.
F026	18.6	27.7	7.14	322.	96.0	387.	18.0	6.65	79.2	264.
F060	18.	26.	7.	309.	96.	373.	18.	7.	80.	251.
F068	17.	25.	6.3	290. WL	89.	379.	16.	6.2	73.	245.
F069	17.2	25.2	6.36	298.	91.9	363.	16.2	5.78	73.6	253.
F069b	17.4	25.9	6.04	304.	92.1	379.	16.1	5.33	76.4	258.
F153	18.0	26.2	6.3		91.		16.9	6.0	77.	
F153b	18.4	26.5	6.2	299.	92.	399.	17.1	5.9	78.	255.
F154	18.1	27.6	6.93	328.	97.2	406.	17.8	6.61	82.1	273.
F158	18.4	27.2	20.1 AH	318.	96.3	384.	17.8	6.4	79.3	265.
F169	17.9	26.8	6.66	303.	96.0	376.	17.4	6.17	79.4	268.
F183	18.	28.	6.8	304.	93.	388.	18.	6.3	75.	260.
F193	17.7	25.3	6.3	315.	83.7 AL	388.	16.6	5.9	71.6	239. WL
F207	18.	27.	7.	318.	95.	376.	16.	6.	79.	259.
F228	18.7	27.8	6.84	319.	98.8	393.	17.9	6.63	81.3	274.
F239		26.7				406.				275.
F249	17.3	26.2	6.41	299.	94.3	375.	16.9	6.03	75.0	253.
F249a	17.9	27.2	6.08	314.	95.1	384.	16.9	5.48	78.0	261.
F249b	17.6	27.2	6.34	310.	93.5	384.	17.1	5.87	78.4	266.
F293	18.1	26.5	6.48	310.	91.0	364.	17.4	6.34	77.1	259.
F294	18.1	26.6	6.7	311.	93.	377.	16.7	6.4	76.3	254.
F301	16.5	27.7	8.50 AH	314.	96.2	390.	20.5 AH	10.7 AH	81.2	267.
F308	17.2	25.5	5.93	297.	88.6	382.	16.8	5.42	74.3	251.
F316	16.7	26.	<10.0	307.	93.9	376.	16.5	<10.0	76.7	257.
ASSIGNED VALUE *	17.8	26.6	6.58	310	93.9	384	17.1	6.16	77.2	260
R-STD DEV *	0.70	0.99	0.442	9.5	3.10	11.4	0.86	0.450	2.88	9.7
ACCEPTABLE LIMITS(+-) *	1.40	1.98	0.884	19.0	6.20	22.8	1.72	0.900	5.76	19.4
WARNING LIMITS(+-) *	1.40- 2.10	1.98- 2.97	.884- 1.326	19.0- 28.5	6.20- 9.30	22.8- 34.2	1.72- 2.58	.900- 1.350	5.76- 8.64	19.4- 29.1
ACTION LIMITS(<>) *	2.10	2.97	1.326	28.5	9.30	34.2	2.58	1.350	8.64	29.1
N *	32	33	31	31	32	32	32	31	32	32

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	177.0	17.7			10			ICP-MS
F007	249.5	24.9	WH		10			ICP-MS
F009	254.0	25.4		BIASED HIGH	10	3.7	0.0735	ICP-MS
F011	125.5	12.5			10			
F015	221.5	22.1	AH WH		10			ICP-AES
F015b	169.0	16.9			10			ICP-MS
F020	261.5	26.1		BIASED HIGH	10	3.1	0.4528	ICP-MS
F021	96.5	9.6			10			ICP-MS
F022	151.5	15.1			10			ICP-MS
F024	22.0	2.2	WL	BIASED LOW	10	-5.9	-0.2839	ICP-MS
F026	261.0	26.1		BIASED HIGH	10	1.7	0.6707	ICP-AES
F060	185.5	18.5			10			ICP-MS
F068	60.0	6.0	WL	BIASED LOW	10	-3.6	-1.0065	ICP-MS
F069	57.5	5.7		BIASED LOW	10	-4.5	0.4812	ICP-MS
F069b	79.5	7.9			10			ICP-AES
F153	82.0	11.7			7			ICP-MS
F153b	146.0	14.6			10			ICP-AES
F154	277.0	27.7		BIASED HIGH	10	5.7	-0.4431	ICP-MS
F158	248.0	24.8	AH		10			ICP-MS
F169	182.5	18.2			10			
F183	187.5	18.7			10			ICP-MS
F193	90.0	9.0	AL WL		10			ICP-MS
F207	172.5	17.2			10			ICP-AES
F228	280.0	28.0		BIASED HIGH	10	2.9	0.9490	ICP-AES total
F239	80.0	26.6		INSUFFICIENT DATA	3			ICP-OES
F249	103.0	10.3			10			ICP-MS
F249a	156.5	15.6			10			ICP-AES
F249b	159.0	15.9			10			ICP-AES
F293	148.0	14.8			10			ICP-MS
F294	149.0	14.9			10			ICP-MS
F301	248.5	24.8	AH AHAH		10			SAA-Llama-Cu
F308	57.0	5.7		BIASED LOW	10	-2.0	-1.1765	ICP-MS
F316	79.0	9.8			8			ICP-AES

OVERALL AVERAGE RANK IS 16.4

PARAMETER: 31095 Gallium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.00387	9.23	12.2	0.0902	33.0	0.0503	0.146	0.0724	9.97	50.6
F022	<0.01	9.01	11.9	0.063	33.1	0.017	0.167	0.075	10.1	51.0
F024	<0.1	8.8	11.9	<0.1	32.5	<0.1	0.1	<0.1	9.7	50.5
F183	<0.10	8.71	11.9	<0.10	32.1	<0.10	0.15	<0.10	9.80	50.6
F249	0.004	9.48	12.6	0.058	34.8 WH	0.015	0.164	0.075	10.4	52.8 WH
F249a	<2.	9.23	12.5	<1.	32.2	<2.	<2.	<2.	9.92	50.7
F249b	<2.	9.14	12.5	<2.	32.6	<2.	<2.	<2.	9.87	50.8
F294	<0.1	8.6	11.5	0.1	31.6	0.1	0.1	0.1	9.3	48.3 WL
F308	0.002	7.84 WL	10.7 WL	0.08	29.7 WL	0.086	0.13	0.06	8.83 WL	48.0 WL
ASSIGNED VALUE *	0.00329	8.95	12.0	0.0782	32.4	0.0537	0.137	0.0761	9.80	50.5
R-STD DEV *	0.001269	0.415	0.53	0.02014	0.97	0.04408	0.0316	0.01573	0.436	0.89
ACCEPTABLE LIMITS(+-) *	-	0.830	1.06	-	1.94	-	0.0632	-	0.872	1.78
WARNING LIMITS(+-) *	-	.830- 1.245	1.06- 1.59	-	1.94- 2.91	-	.0632- .0948	-	.872- 1.308	1.78- 2.67
ACTION LIMITS(<>) *	-	1.245	1.59	-	2.91	-	0.0948	-	1.308	2.67
N *	3	9	9	5	9	5	7	5	9	9

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	47.0	4.7			10			ICP-MS
F022	47.5	5.2			9			ICP-MS
F024	20.5	3.4			6			ICP-MS
F183	23.5	3.9			6			ICP-MS
F249	59.5	5.9	WH WH		10			ICP-MS
F249a	31.0	6.2			5			ICP-AES
F249b	31.5	6.3			5			ICP-AES
F294	26.5	2.9	WL		9			ICP-MS
F308	17.0	1.7	WLWLWL WLWL		10			ICP-MS

NOTE: BIAS WAS NOT ASSESSED BECAUSE STATISTICS FOR FEWER THAN 10 LABS WERE AVAILABLE

OVERALL AVERAGE RANK IS 4.3

PARAMETER: 26095 Iron ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	44.0	31.8	17.6	323.	118.	494.	27.0	10.5	110.	296.
F007	44.3	33.4	18.5	334.	126.	494.	28.7	11.9	117.	314.
F009	35. AL	27.	<20.	314.	114.	477.	25.	<20.	110.	286.
F011	43.	32.	18.	333.	122.	484.	28.	11.	113.	301.
F015	46.	33.	19.	342.	132. WH	511.	28.	11.	119.	310.
F015b	46.	33.	19.	342.	132. WH	511.	28.	11.	119.	310.
F020	43.9	39.9 AH	23.7 AH	344.	142. AH	536. AH	33.8 AH	13.3 AH	112.	388. AH
F021	44.	32.	<20.	328.	119.	490.	27.	<20.	110.	301.
F022	41.	31.0	17.0	324.	117.	479.	26.0	10.0	109.	291.
F024	42.0	29.6	16.4	325.	115.	494.	26.1	10.2	104.	296.
F026	43.0	30.8	17.4	316.	118.	483.	26.2	10.5	108.	287.
F060	23. AL	<10. AL	<10. AL	257. AL	91. AL	424. AL	11. AL	<10.	73. AL	259. WL
F068	41.	30.	17.	316.	113.	473.	25.	10.	103.	295.
F069b	42.1	30.8	16.1	314.	114.	469.	27.5	11.6	107.	292.
F153	43.	29.	20.		115.		26.2	10.2	107.	
F153b	42.	29.	20.	318.	116.	475.	26.0	10.0	110.	291.
F154	<100.	<100.	<100.	310.	<100. WL	470.	<100.	<100.	<100.	270. WL
F158	<50.	<50.	<50.	333.	115.	495.	<50.	<50.	104.	304.
F169	41.5	32.2	18.6	317.	123.	476.	29.2		113.	309.
F183	45.7	30.9	18.3	329.	117.	499.	25.6	11.1	109.	294.
F193	43.6	29.9	17.0	312.	114.	478.	25.3	10.2	105.	289.
F207	44.	31.	17.	323.	118.	482.	26.	11.	107.	294.
F239		29.1				490.				305.
F249a	43.4	30.1	16.8	323.	116.	496.	25.2	10.3	103.	300.
F249b	42.4	31.7	17.9	325.	115.	483.	26.0	10.7	106.	295.
F293	46.	<30.	<30.	347.	125.	513.	<30.	<30.	110.	313.
F294	40.3	29.5	16.7	316.	114.	476.	25.	10.2	104.	293.
F301	32.5 AL	18.7 AL	9.00 AL	296.	86.5 AL	462.	11.2 AL	<6.00 AL	79.0 AL	248. AL
F308	43.1	39.4 AH	34.6 AH	135. AL	66.9 AL	189. AL	38.6 AH	33.1 AH	64.1 AL	124. AL
F316	<100.	<100.	<100.	322.	123.	488.	<100.	<100.	113.	300.
ASSIGNED VALUE *	42.8	30.9	17.93	323	117.6	485	26.5	10.75	108.0	296
R-STD DEV *	2.24	1.96	1.586	13.5	6.40	16.7	1.83	0.735	5.51	12.7
ACCEPTABLE LIMITS(+-) *	4.48	3.92	3.172	27.0	12.80	33.4	3.66	1.470	11.02	25.4
WARNING LIMITS(+-) *	4.48- 6.72	3.92- 5.88	3.172- 4.758	27.0- 40.5	12.80- 19.20	33.4- 50.1	3.66- 5.49	1.470- 2.205	11.02- 16.53	25.4- 38.1
ACTION LIMITS(<>) *	6.72	5.88	4.758	40.5	19.20	50.1	5.49	2.205	16.53	38.1
N *	26	25	22	28	28	29	25	20	28	29

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	163.5	16.3			10			ICP-MS
F007	224.0	22.4		BIASED HIGH	10	2.5	2.6282	ICP-MS
F009	56.0	7.0	AL		8			ICP-MS
F011	182.0	18.2			10			
F015	229.0	22.9	WH	BIASED HIGH	10	5.1	1.7512	ICP-AES
F015b	229.0	22.9	WH	BIASED HIGH	10	5.1	1.7512	ICP-AES
F020	242.0	24.2	AHAH AHAHAHAH AH	BIASED HIGH	10	12.7	3.3391	ICP-MS
F021	153.0	19.1			8			ICP-AES
F022	108.5	10.8			10			ICP-AES total
F024	110.5	11.0			10			ICP-MS
F026	120.0	12.0			10			ICP-AES
F060	14.0	2.0	ALALALALALALAL ALWL	BIASED LOW	7	-10.2	-16.9247	ICP-AES
F068	66.0	6.6		BIASED LOW	10	-1.8	-0.8851	ICP-MS
F069b	97.5	9.7			10			ICP-AES
F153	78.5	11.2			7			ICP-MS
F153b	104.0	10.4			10			ICP-AES
F154	13.0	4.3	WL WL	INSUFFICIENT DATA	3			ICP-MS
F158	85.0	17.0			5			ICP-MS
F169	156.0	17.3			9			ICP-MS CRI
F183	163.5	16.3			10			ICP-MS
F193	83.5	8.3			10			ICP-MS
F207	136.5	13.6			10			ICP-AES
F239	46.5	15.5		INSUFFICIENT DATA	3			ICP-OES
F249a	120.5	12.0			10			ICP-AES
F249b	128.5	12.8			10			ICP-AES
F293	151.0	25.1		BIASED HIGH	6	6.3	-0.9174	ICP-AES
F294	65.5	6.5		BIASED LOW	10	-1.5	-1.1888	ICP-MS
F301	19.0	2.1	ALALAL AL ALALALAL	BIASED LOW	9	-4.2	-16.0625	SAA-Llama-Fe
F308	111.0	11.1	AHAHALALALAHAHALAL		10			ICP-MS
F316	95.0	19.0			5			ICP-AES

OVERALL AVERAGE RANK IS 13.6

PARAMETER: 82095 Lead ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.0983	26.9	4.27	339.	97.1	576.	11.6	2.80	62.5	273.
F007	0.18	27.3	4.43	347.	101.	598.	11.9	2.97	66.6	290.
F009	<2.	27.	4.3	333.	96.	581.	12.	3.0	62.	267.
F011	0.3 WH	27.5	4.5	341.	97.7	575.	11.9	3.0	64.2	277.
F015	<50.	<50.	<50.	340.	120. AH	590.	<50.	<50.	80. AH	280.
F015b	0.1	28.1	4.49	354.	106. WH	607.	11.9	2.87	64.1	280.
F020	0.094	27.9	4.39	363.	98.5	619.	11.8	2.88	68.4	295.
F021	0.08	26.4	4.29	354.	98.0	616.	11.3	2.75	63.6	275.
F022	0.086	26.1	4.43	346.	95.0	581.	11.8	2.81	59.1	272.
F024	<0.1	27.4	4.4	364.	98.9	612.	11.8	2.9	64.7	288.
F026	<2.	27.1	3.61 AL	353.	101.	593.	11.7	<2. AL	63.1	280.
F060	<0.1	27.6	4.5	357.	99.0	608.	12.5	3.1	64.9	290.
F068	0.13	26.3	4.09	335.	92.3	593.	10.9	2.66	60.4	268.
F069	0.124	26.5	4.24	360.	99.6	627.	11.4	2.75	63.7	283.
F153	<0.2	26.3	4.2		94.		11.0	2.8	60.	
F153b	<10.	26.0	<10.	340.	95.	591.	11.4	<10.	60.	272.
F154	0.103	27.8	4.55	369.	103.	627.	12.1	3.08	68.0	295.
F158	<2.	27.7	5.5 AH	360.	99.4	606.	11.6	2.9	63.8	286.
F169	<0.20	27.4	4.33	398. AH	89.5 WL	555. WL	10.9	2.64	61.4	260.
F183	<0.50	27.	4.3	346.	97.	600.	11.8	2.8	62.	276.
F193	<0.9	26.5	4.3	351.	97.2	601.	11.3	2.7	62.5	277.
F228	<3.0	26.3	4.45	352.	100.	602.	11.4	<3.0	65.5	287.
F249	0.101	26.4	4.23	351.	98.1	602.	11.3	2.74	61.2	285.
F249a	<1.	27.	4.6	353.	98.	603.	12.	3.0	64.	283.
F249b		27.3	3.67 AL	353.	95.5	593.	11.0	2.70	62.8	279.
F293	<0.20	27.3	4.35	354.	98.7	583.	12.0	2.89	64.6	283.
F294	0.2	28.1	4.7	349.	97.	604.	11.2	2.8	62.6	279.
F301	<6.54	35.6 AH	<6.54	266. AL	88.3 WL	515. AL	18.9 AH	<6.54	75.0 AH	231. AL
F308	0.75 AH	25.9	3.09 AL	334.	92.2	568.	11.7	1.69 AL	59.4	262.
F316	<5.00	25.5	<5.00	325.	92.7	556.	11.1	<5.00	60.	259.
ASSIGNED VALUE *	0.1341	27.0	4.35	349	97.4	595	11.6	2.84	63.3	278
R-STD DEV *	0.06036	0.81	0.200	12.2	3.70	19.8	0.46	0.150	2.87	10.9
ACCEPTABLE LIMITS(+-) *	0.12072	1.62	0.400	24.4	7.40	39.6	0.92	0.300	5.74	21.8
WARNING LIMITS(+-) *	.12072- .1811	.62- 2.43	.400- .600	24.4- 36.6	7.40- 11.10	39.6- 59.4	.92- 1.38	.300- .450	5.74- 8.61	21.8- 32.7
ACTION LIMITS(<>) *	0.18108	2.43	0.600	36.6	11.10	59.4	1.38	0.450	8.61	32.7
N *	13	29	26	29	30	29	29	24	30	29

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	93.5	9.3			10			ICP-MS
F007	192.5	19.2			10			ICP-MS
F009	106.0	11.7			9			ICP-MS
F011	161.0	16.1	WH		10			
F015	94.5	18.9	AH AH		5			ICP-AES
F015b	198.5	19.8	WH		10			ICP-MS
F020	206.0	20.6			10			ICP-MS
F021	123.5	12.3			10			ICP-MS
F022	89.0	8.9			10			ICP-MS
F024	193.5	21.5			9			ICP-MS
F026	123.0	15.3	AL AL		8			ICP-AES
F060	216.0	24.0		BIASED HIGH	9	2.4	0.4619	ICP-MS
F068	57.5	5.7		BIASED LOW	10	-1.2	-1.8373	ICP-MS
F069	158.0	15.8			10			ICP-MS
F153	35.0	5.8		BIASED LOW	6	-3.9	-0.0182	ICP-MS
F153b	51.5	7.3			7			ICP-AES
F154	245.0	24.5		BIASED HIGH	10	5.5	0.2207	ICP-MS
F158	191.5	21.2	AH		9			ICP-MS
F169	81.0	9.0	AHWLWL		9			ICP-MS
F183	112.5	12.5			9			ICP-MS
F193	103.5	11.5			9			ICP-MS
F228	144.5	18.0			8			ICP-AES total
F249	114.5	11.4			10			ICP-MS
F249a	177.5	19.7			9			ICP-AES
F249b	97.5	10.8	AL		9			ICP-AES
F293	165.0	18.3			9			ICP-MS
F294	153.0	15.3			10			ICP-MS
F301	91.0	13.0	AH ALWLALAH AHAL		7			
F308	49.5	4.9	AH AL AL	BIASED LOW	10	-4.6	-0.4818	ICP-MS
F316	22.0	3.1		BIASED LOW	7	-6.8	0.6146	ICP-AES

OVERALL AVERAGE RANK IS 14.3

PARAMETER: 03095 Lithium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.533	23.7	3.39	10.3	58.5	129.	14.9	3.65	19.6	142.
F007	0.5	24.4	3.7	11.6	59.1	129.	16.2	3.7	21.3	146.
F009	<1.	23.	3.1	10.	55.	126.	14.	3.3	18.	137.
F011	0.6	23.6	3.6	11.2	58.1	133.	15.5	3.8	19.9	151.
F015b	0.56	25.1	3.76	11.6	64.4 WH	145. AH	17.6 WH	4.37 AH	22.7 WH	167. WH
F020	0.67 WH	26. WH	3.58	11.3	64. WH	136.	17.6 WH	3.73	20.9	163. WH
F022	0.549	22.6	3.26	10.6	58.0	128.	15.1	3.54	19.0	145.
F024	0.5	22.2	3.2	10.5	55.5	128.	14.8	3.4	18.7	141.
F026b	<5.	23.2	<5.	10.8	58.6	131.	15.3	<5.	19.2	145.
F060	<1.	23.	4.	11.	58.	131.	15.	4.	20.	144.
F069	0.546	23.8	3.47	10.9	56.7	124.	15.8	3.68	19.7	137.
F069b	0.49	21.6 WL	3.44	10.4	53.2	122.	14.3	3.59	17.9	132.
F153	0.51	23.9	3.4	10.4	55.	124.	13.8	3.6	17.6	125.
F153b	<10.	24.	<10.	10.3	55.	125.	13.9	<10.	17.8	126.
F154	<2.0	22.8	3.4	10.6	59.0	146. AH	15.3	3.7	19.9	157.
F183	0.52	24.6	3.77	11.3	59.4	133.	16.1	3.75	20.3	143.
F249	0.552	23.2	3.53	10.6	58.7	131.	15.3	3.76	19.2	143.
F294	0.6	23.3	3.5	10.8	57.6	133.	15.4	3.8	19.7	147.
F308	0.53	23.6	3.78	10.7	56.5	126.	14.5	3.44	19.0	139.
F316	<50.0	<50.0	<50.0	<50.0	59.1	126.	<50.0	<50.0	<50.0	140.
ASSIGNED VALUE *	0.543	23.5	3.52	10.8	57.7	129	15.2	3.67	19.4	143
R-STD DEV *	0.0441	0.94	0.239	0.49	2.25	5.1	0.97	0.192	1.26	9.3
ACCEPTABLE LIMITS(+-) *	0.0882	1.88	0.478	0.98	4.50	10.2	1.94	0.384	2.52	18.6
WARNING LIMITS(+-) *	.0882- .1323	1.88- 2.82	.478- .717	.98- 1.47	4.50- 6.75	10.2- 15.3	1.94- 2.91	.384- .576	2.52- 3.78	18.6- 27.9
ACTION LIMITS(<>) *	0.1323	2.82	0.717	1.47	6.75	15.3	2.91	0.576	3.78	27.9
N *	14	19	17	19	20	20	19	17	19	20

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	81.0	8.1			10			ICP-MS
F007	136.5	13.6			10			ICP-MS
F009	29.0	3.2		BIASED LOW	9	-3.1	-0.4152	ICP-MS
F011	136.0	13.6			10			
F015b	175.0	17.5	WHAHWHAHWHWH	BIASED HIGH	10	14.9	-0.4959	ICP-MS
F020	163.0	16.3	WHWH WH WH WH	BIASED HIGH	10	10.4	-0.1671	ICP-MS
F022	74.0	7.4			10			ICP-MS
F024	47.0	4.7		BIASED LOW	10	-1.0	-0.4491	ICP-MS
F026b	78.0	11.1			7			ICP-AES
F060	110.0	12.2			9			ICP-MS
F069	90.5	9.0			10			ICP-MS
F069b	30.5	3.0	WL	BIASED LOW	10	-6.8	0.0214	ICP-AES
F153	42.5	4.2		BIASED LOW	10	-8.9	0.7032	ICP-MS
F153b	30.5	4.3		BIASED LOW	7	-8.6	1.0932	ICP-AES
F154	104.5	11.6	AH		9			ICP-MS
F183	142.0	14.2			10			ICP-MS
F249	105.5	10.5			10			ICP-MS
F294	121.0	12.1			10			ICP-MS
F308	75.0	7.5			10			ICP-MS
F316	29.5	9.8		INSUFFICIENT DATA	3			ICP-AES

OVERALL AVERAGE RANK IS 9.7

PARAMETER: 25095 Manganese ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.778	25.1	6.86	361.	95.0	332.	18.4	2.23	78.7	298.
F007	0.8	26.3	7.28 WH	363.	101. WH	324.	19.4	2.47	83.3 WH	299.
F009	<1.	23. WL	4.5 AL	359.	93.	329.	16. AL	<1. AL	78.	289.
F011	0.8	24.6	6.9	350.	92.9	323.	18.1	2.2	77.9	292.
F015	<1.	24.	7.	353.	93.	328.	19.	2.	75.	290.
F015b	0.746	25.1	6.92	357.	92.6	328.	18.1	2.26	77.5	289.
F020	0.815	25.5	6.94	358.	94.3	337.	18.2	2.26	77.1	297.
F021	<2.	26.	7.	361.	96.	331.	19.	2.	80.	294.
F022	0.729	24.7	6.81	359.	93.8	324.	17.5	2.17	78.5	285.
F024	0.8	24.9	6.9	354.	92.7	326.	18.3	2.3	77.6	290.
F026	<2.	25.1	6.85	356.	94.2	330.	18.1	2.13	77.5	295.
F060	<5.	28. AH	7.	384. AH	101. WH	350. AH	19.	<5.	85. WH	316. WH
F068	0.76	24.3	6.78	339.	91.3	328.	17.7	2.19	75.2	278.
F069	0.831	25.2	6.74	348.	92.6	318.	18.3	2.21	77.7	282.
F069b	0.549 AL	25.	6.66	359.	93.6	322.	17.7	2.03	76.9	283.
F153	0.81	24.0	6.7		92.		17.9	2.3	76.	282.
F153b	<2.	24.4	6.9	358.	92.	333.	18.3	2.5	77.	289.
F154	0.76	25.3	6.96	359.	95.2	337.	18.4	2.33	81.2	301.
F158	<2.	24.6	7.0	357.	92.8	327.	18.0	2.3	76.8	290.
F169	0.77	25.2	6.96	343.	96.3	318.	18.4	2.30	81.0	292.
F183	<0.10 AL	25.0	6.86	346.	92.5	328.	18.0	2.00	78.8	281.
F193	0.8	24.8	6.8	341.	89.9	318.	17.4	2.1	74.1	279.
F239		26.1				335.				308.
F249a	0.84	25.7	7.02	362.	95.0	332.	18.3	2.22	78.9	290.
F249b	0.84	25.0	6.85	352.	89.8	321.	17.9	2.29	76.0	283.
F293	<1.0	26.2	7.1	376. WH	100. WH	335.	19.1	2.3	80.	303.
F294	0.7	25.	6.8	353.	94.3	321.	17.4	2.2	77.4	284.
F301	<2.00	26.5	<2.00 AL	373.	100. WH	333.	21.5 AH	4.50 AH	85.0 WH	306.
F308	0.66 WL	22.8 WL	6.24 AL	325. AL	83.9 AL	306. AL	17.6	2.15	71.8 WL	263. WL
F316	<10.0	25.6	<10.0	360.	94.6	331.	18.5	<10.0	78.4	292.
ASSIGNED VALUE *	0.776	25.1	6.88	356	93.8	328	18.2	2.22	78.0	291
R-STD DEV *	0.0542	0.84	0.141	8.9	2.52	7.1	0.63	0.141	2.39	9.4
ACCEPTABLE LIMITS(+-) *	0.1084	1.68	0.282	17.8	5.04	14.2	1.26	0.282	4.78	18.8
WARNING LIMITS(+-) *	.1084- .1626	1.68- 2.52	.282- .423	17.8- 26.7	5.04- 7.56	14.2- 21.3	1.26- 1.89	.282- .423	4.78- 7.17	18.8- 28.2
ACTION LIMITS(<>) *	0.1626	2.52	0.423	26.7	7.56	21.3	1.89	0.423	7.17	28.2
N *	18	30	27	28	29	29	29	26	29	30

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	183.0	18.3			10			ICP-MS
F007	233.5	23.3	WH WH WH	BIASED HIGH	10	0.8	1.7376	ICP-MS
F009	82.0	10.2	WLAL ALAL		8			ICP-MS
F011	119.5	11.9			10			
F015	109.0	12.1			9			ICP-AES
F015b	128.5	12.8			10			ICP-MS
F020	180.0	18.0			10			ICP-MS
F021	185.0	20.5			9			ICP-AES
F022	107.0	10.7			10			ICP-MS
F024	136.5	13.6			10			ICP-MS
F026	128.0	14.2			9			ICP-AES
F060	221.5	27.6	AH AHWHAH WHWH	BIASED HIGH	8	7.6	0.2465	ICP-AES
F068	59.5	5.9		BIASED LOW	10	-3.1	0.0393	ICP-MS
F069	108.0	10.8			10			ICP-MS
F069b	84.0	8.4	AL		10			ICP-AES
F153	66.5	8.3			8			ICP-MS
F153b	129.0	14.3			9			ICP-AES
F154	212.0	21.2			10			ICP-MS
F158	119.5	13.2			9			ICP-MS
F169	164.0	16.4			10			ICP-MS
F183	90.0	10.0	AL		9			ICP-MS
F193	50.5	5.0		BIASED LOW	10	-3.8	-0.0341	ICP-MS
F239	80.5	26.8		INSUFFICIENT DATA	3			ICP-OES
F249a	201.5	20.1			10			ICP-AES
F249b	95.5	9.5			10			ICP-AES
F293	229.5	25.5	WHWH	BIASED HIGH	9	4.1	0.1008	ICP-AES
F294	90.5	9.0			10			ICP-MS
F301	216.5	27.0	AL WH AHAHWH	BIASED HIGH	8	3.0	2.6305	SAA-Llama-Mn
F308	22.0	2.2	WLWLALALALAL WLWL	BIASED LOW	10	-8.3	-0.1595	ICP-MS
F316	143.5	20.5			7			ICP-AES

OVERALL AVERAGE RANK IS 14.4

PARAMETER: 42095 Molybdenum ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.139	28.3	3.85	259.	103.	293.	15.1	2.31	55.7	295.
F007	0.17	28.1	3.94	265.	106.	296.	15.3	2.71	57.2	310. WH
F009	<1.	27.	3.7	248.	99.	291.	15.	2.5	54.	288.
F011	0.1	26.1	3.6	251.	96.5	280.	14.7	2.6	52.3	286.
F015	<10.	30. WH	<10.	270.	110. WH	300.	20. AH	<10.	60. WH	300.
F015b	0.13	28.2	3.77	260.	104.	295.	15.1	2.37	57.2	298.
F020	0.118	26.5	3.56	247.	96.5	278.	14.	2.27	55.1	271.
F021	0.16	27.3	3.83	256.	99.6	298.	14.8	2.29	53.3	288.
F022	0.131	28.2	3.62	253.	98.1	287.	15.6	2.26	55.4	278.
F024	0.1	26.2	3.5	245.	97.2	277.	14.2	2.3	52.7	279.
F026	<5.	28.2	<5.	260.	104.	293.	15.1	<5.	56.2	291.
F060	<1.	28.	4.	270.	109. WH	290.	17. WH	3. WH	59. WH	290.
F068	0.15	27.	3.68	252.	101.	300.	14.3	2.3	54.7	285.
F069	0.156	27.1	3.65	262.	105.	293.	14.5	2.27	54.7	296.
F069b	<2.20	28.2	4.31 WH	252.	100.	278.	16.4	3.46 AH	54.9	280.
F153	<0.2	26.2	3.2 WL	247.	98.		14.1	2.0	52.	
F153b	<10.	26.8	<10.	249.	99.	297.	14.2	<10.	53.	292.
F154	0.16	26.7	3.58	256.	98.8	287.	14.4	2.30	54.0	291.
F158	<10.	26.7	<10.	246.	98.3	281.	14.4	<10.	53.3	282.
F183	0.255 AH	28.3	4.32 WH	264.	108.	307.	18.6 AH	4.11 AH	55.2	298.
F249	0.13	27.8	3.75	257.	103.	290.	14.9	2.37	55.5	291.
F249a	1.98 AH	26.2	3.49	242.	95.8	275.	13.9	2.30	52.3	275.
F249b	<1.	27.0	4.14	248.	95.9	280.	13.8	2.12	52.5	279.
F293	0.17	28.2	3.89	257.	101.	283.	15.1	2.32	56.1	289.
F294	<0.3	26.5	3.7	258.	102.	293.	15.	2.5	52.2	294.
F308	0.11	27.8	3.64	245.	98.5	288.	15.1	2.71	55.1	285.
F316	<10.0	27.7	<10.0	253.	101.	286.	15.4	<10.0	54.4	283.
ASSIGNED VALUE *	0.145	27.4	3.75	254	100.8	289	14.9	2.42	54.6	288
R-STD DEV *	0.0344	0.93	0.233	8.0	3.99	9.0	0.78	0.250	1.95	8.6
ACCEPTABLE LIMITS(+-) *	0.0688	1.86	0.466	16.0	7.98	18.0	1.56	0.500	3.90	17.2
WARNING LIMITS(+-) *	.0688- .1032	1.86- 2.79	.466- .699	16.0- 24.0	7.98- 11.97	18.0- 27.0	1.56- 2.34	.500- .750	3.90- 5.85	17.2- 25.8
ACTION LIMITS(<>) *	0.1032	2.79	0.699	24.0	11.97	27.0	2.34	0.750	5.85	25.8
N *	16	27	22	27	27	26	27	22	27	26

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	177.5	17.7			10			ICP-MS
F007	210.5	21.0	WH	BIASED HIGH	10	4.9	-0.1091	ICP-MS
F009	109.5	12.1			9			ICP-MS
F011	70.0	7.0			10			
F015	184.0	26.2	WH WH AH WH	BIASED HIGH	7	3.3	3.9692	ICP-AES
F015b	184.0	18.4			10			ICP-MS
F020	51.0	5.1		BIASED LOW	10	-4.4	0.4473	ICP-MS
F021	131.0	13.1			10			ICP-MS
F022	115.0	11.5			10			ICP-MS
F024	41.5	4.1		BIASED LOW	10	-3.6	-0.0737	ICP-MS
F026	140.5	20.0			7			ICP-AES
F060	189.0	21.0	WH WHWHWH	BIASED HIGH	9	1.6	2.0740	ICP-MS
F068	120.5	12.0			10			ICP-MS
F069	145.5	14.5			10			ICP-MS
F069b	138.0	15.3	WH AH		9			ICP-AES
F153	21.5	3.0	WL	BIASED LOW	7	-2.6	-0.5239	ICP-MS
F153b	83.0	11.8			7			ICP-AES
F154	104.5	10.4			10			ICP-MS
F158	50.5	7.2			7			ICP-MS
F183	227.0	22.7	AH WH AHAH	BIASED HIGH	10	4.4	0.7730	ICP-MS
F249	149.0	14.9			10			ICP-MS
F249a	40.0	4.0	AH	BIASED LOW	10	-4.8	0.2813	ICP-AES
F249b	58.5	6.5			9			ICP-AES
F293	160.0	16.0			10			ICP-MS
F294	123.5	13.7			9			ICP-MS
F308	113.5	11.3			10			ICP-MS
F316	95.5	13.6			7			ICP-AES

OVERALL AVERAGE RANK IS 13.0

PARAMETER: 28095 Nickel ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE LAB NO	1= TM104-1 LAB RESULT	2= TM104-2 LAB RESULT	3= TM104-3 LAB RESULT	4= TM104-4 LAB RESULT	5= TM104-5 LAB RESULT	6= TM104-6 LAB RESULT	7= TM104-7 LAB RESULT	8= TM104-8 LAB RESULT	9= TM104-9 LAB RESULT	10= TM104-10 LAB RESULT
F003	61.1	16.4	9.72	305.	97.8	401.	17.5	2.38	65.8	249.
F007	61.9	16.3	9.96	341. WH	97.6	409.	17.7	2.46	66.2	259.
F009	63.	16.	9.7	312.	100.	411.	18.	2.5	66.	249.
F011	62.2	16.1	9.8	309.	95.7	411.	17.5	2.3	65.6	254.
F015	70. AH	<20.	<20.	300.	100.	390.	<20.	<20.	70. WH	240.
F015b	59.8	16.9	10.6	313.	97.0	391.	18.5	3.67 AH	66.5	244.
F020	65.8 WH	17.	10.2	323.	104.	426.	17.9	2.45	66.3	264.
F021	60.7	15.8	9.45	310.	95.5	406.	16.6	2.28	62.6	242.
F022	60.9	16.9	10.8 WH	303.	99.1	389.	15.8 WL	2.45	65.5	246.
F024	59.8	15.5	9.5	297.	93.7	390.	16.8	2.3	63.0	241.
F026	63.5	16.3	9.92	317.	99.7	411.	17.6	2.39	66.2	254.
F060	63.6	15.8	10.1	317.	99.1	405.	18.1	2.5	67.4	249.
F068	58.9	15.2	9.36	287.	92.7	399.	16.4	2.45	61.8	234.
F069	58.9	15.1	9.32	293.	90.1	379.	16.4	2.42	61.3	240.
F069b	59.4	16.	9.7	309.	96.4	393.	17.1	1.58 AL	63.8	242.
F153	62.	15.7	9.6		93.		17.5	2.8	64.	
F153b	62.	15.8	9.7	311.	95.	423.	17.4	<5.	65.	255.
F154	62.5	17.0	10.2	330.	102.	435.	18.2	2.5	68.4	262.
F158	62.6	16.2	10.2	312.	98.4	407.	18.1	2.7	66.2	254.
F169	61.0	16.6	10.2	303.	100.	398.	18.3	2.83	67.9	255.
F183	63.	16.	9.9	304.	96.	408.	18.	<2.5	64.	237.
F228	66.0 WH	16.8	10.1	315.	101.	416.	18.2	2.33	68.1	259.
F239		18.5 AH				422.				262.
F249	62.6	16.5	9.97	323.	102.	427.	17.9	2.42	66.1	266.
F249a	62.2	16.5	10.0	313.	98.2	407.	17.9	2.63	66.2	253.
F249b	63.2	16.8	10.2	312.	96.4	409.	17.9	2.75	65.4	247.
F293	63.5	16.8	10.3	311.	95.7	394.	18.3	2.65	65.2	249.
F294	61.3	18.5 AH	12.7 AH	295.	97.1	377.	19.9 WH	5.4 AH	63.7	242.
F301	61.7	16.8	9.57	344. WH	102.	438.	19.5 WH	2.54	66.0	273. WH
F308	60.2	15.2	8.84 WL	297.	92.4	397.	17.6	2.10	62.4	235.
F316	58.8	15.8	10.3	285.	91.6	378.	16.7	<5.00	61.5	230.
ASSIGNED VALUE *	61.8	16.3	9.93	309	97.3	405	17.7	2.50	65.3	249
R-STD DEV *	1.97	0.68	0.422	12.2	3.64	16.7	0.77	0.229	2.21	11.0
ACCEPTABLE LIMITS(+-) *	3.94	1.36	0.844	24.4	7.28	33.4	1.54	0.458	4.42	22.0
WARNING LIMITS(+-) *	3.94- 5.91	1.36- 2.04	.844- 1.266	24.4- 36.6	7.28- 10.92	33.4- 50.1	1.54- 2.31	.458- .687	4.42- 6.63	22.0- 33.0
ACTION LIMITS(<>) *	5.91	2.04	1.266	36.6	10.92	50.1	2.31	0.687	6.63	33.0
N *	30	30	29	29	30	30	29	26	30	30

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	128.5	12.8			10			ICP-MS
F007	182.0	18.2	WH		10			ICP-MS
F009	175.0	17.5			10			ICP-MS
F011	136.0	13.6			10			
F015	102.0	17.0	AH WH		6			ICP-AES
F015b	187.5	18.7	AH		10			ICP-MS
F020	240.5	24.0	WH	BIASED HIGH	10	5.2	-0.1646	ICP-MS
F021	77.5	7.7			10			ICP-MS
F022	134.5	13.4	WH WL		10			ICP-MS
F024	55.0	5.5		BIASED LOW	10	-3.7	-0.0141	ICP-MS
F026	184.5	18.4			10			ICP-AES
F060	190.0	19.0			10			ICP-MS
F068	45.5	4.5		BIASED LOW	10	-3.6	-1.2079	ICP-MS
F069	31.0	3.1		BIASED LOW	10	-5.6	0.0663	ICP-MS
F069b	82.0	8.2	AL		10			ICP-AES
F153	75.0	10.7			7			ICP-MS
F153b	122.0	13.5			9			ICP-AES
F154	247.5	24.7		BIASED HIGH	10	7.2	-1.4700	ICP-MS
F158	194.0	19.4			10			ICP-MS
F169	194.5	19.4			10			ICP-MS
F183	118.5	13.1			9			ICP-MS
F228	224.0	22.4	WH		10			ICP-AES total
F239	81.0	27.0	AH	INSUFFICIENT DATA	3			ICP-OES
F249	210.5	21.0			10			ICP-MS
F249a	183.0	18.3			10			ICP-AES
F249b	183.0	18.3			10			ICP-AES
F293	180.5	18.0			10			ICP-MS
F294	161.5	16.1	AHAH WHAH		10			ICP-MS
F301	222.0	22.2	WH WH WH		10			SAA-Horno Grafito-Ni
F308	50.5	5.0	WL	BIASED LOW	10	-3.0	-0.9611	ICP-MS
F316	47.0	5.2		BIASED LOW	9	-7.4	0.8132	ICP-AES

OVERALL AVERAGE RANK IS 15.1

PARAMETER: 37095 Rubidium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	2.17	19.7	2.41	0.399	15.7	0.138	0.790	0.806	15.5	30.9
F011	2.1	19.8	2.4	0.4	16.0	0.1	0.8	0.8	15.5	31.1
F020	2.	20.	2.38	0.38	15.6	<0.50	0.756	0.773	15.3	30.5
F022	2.04	19.5	2.37	0.419	16.1	0.140	0.798	0.795	15.6	31.0
F024	2.1	19.6	2.3	0.4	15.7	0.1	0.8	0.8	15.5	31.2
F060	1.88	18.5	2.18	0.39	14.9	0.12	0.75	0.72	14.5	29.2
F153	2.0	17.9	2.2	0.38	15.0	<0.2	0.72	0.71	14.6	28.3 WL
F154	2.05	19.5	2.40	0.43	15.9	<0.20	0.80	0.80	16.0	31.9
F169	2.18	19.9	2.38	0.40	16.1	<0.20	0.79	0.77	15.8	31.0
F183	2.13	19.1	2.31	<0.50	15.5	<0.50	0.722	0.71	15.3	31.2
F294	1.9	18.2	2.2	0.3 AL	15.1	0.1	0.7	0.6 AL	14.2	28.4 WL
F308	2.1	19.6	2.37	0.397	15.8	0.159	0.75	0.767	15.2	30.8
ASSIGNED VALUE *	2.06	19.3	2.32	0.396	15.6	0.122	0.765	0.762	15.3	30.6
R-STD DEV *	0.106	0.73	0.098	0.0186	0.47	0.0270	0.0407	0.0484	0.58	1.06
ACCEPTABLE LIMITS(+-) *	0.212	1.46	0.196	0.0372	0.94	0.0540	0.0814	0.0968	1.16	2.12
WARNING LIMITS(+-) *	.212- .318	1.46- 2.19	.196- .294	.0372- .0558	.94- 1.41	.0540- .0810	.0814- .1221	.0968- .1452	1.16- 1.74	2.12- 3.18
ACTION LIMITS(<>) *	0.318	2.19	0.294	0.0558	1.41	0.0810	0.1221	0.1452	1.74	3.18
N *	12	12	12	11	12	7	12	12	12	12

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	83.0	8.3			10			ICP-MS
F011	86.5	8.6			10			
F020	54.0	6.0			9			ICP-MS
F022	79.0	7.9			10			ICP-MS
F024	75.5	7.5			10			ICP-MS
F060	27.5	2.7		BIASED LOW	10	-4.5	-0.0167	ICP-MS
F153	20.0	2.2	WL	BIASED LOW	9	-7.0	0.0886	ICP-MS
F154	87.0	9.6		BIASED HIGH	9	3.5	-0.0409	ICP-MS
F169	83.0	9.2			9			ICP-MS
F183	44.5	5.5			8			ICP-MS
F294	17.5	1.7	AL AL WL	BIASED LOW	10	-6.3	0.0013	ICP-MS
F308	60.5	6.0			10			ICP-MS

OVERALL AVERAGE RANK IS 6.2

PARAMETER: 34095 Selenium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE LAB NO	1= TM104-1 LAB RESULT	2= TM104-2 LAB RESULT	3= TM104-3 LAB RESULT	4= TM104-4 LAB RESULT	5= TM104-5 LAB RESULT	6= TM104-6 LAB RESULT	7= TM104-7 LAB RESULT	8= TM104-8 LAB RESULT	9= TM104-9 LAB RESULT	10= TM104-10 LAB RESULT
F003	0.345	28.8	4.34	21.8	51.2	242.	15.7	1.71	13.9	153.
F007	0.374	28.8	4.57	22.2	51.2	239.	15.9	1.84	14.4	154.
F009	<1.	33.	4.9	25.	58.	274.	18.	1.9	16.	175.
F011	0.3	28.5	4.2	22.3	51.4	235.	15.2	1.7	14.2	150.
F015	<50.	<50.	<50.	<50.	50.	260.	<50.	<50.	<50.	170.
F015b	0.5	32.0	5.0	24.7	57.1	265.	18.3	2.2	16.2	173.
F020	0.325	30.8	4.7	23.4	53.4	257.	16.	1.72	15.2	161.
F021	0.33	27.2	4.28	20.6	49.2	224.	15.2	1.66	13.5	143.
F022	<1.	30.3	5.21	22.0	50.9	233.	16.9	2.50 WH	14.8	152.
F024	0.3	29.7	4.6	23.2	53.5	246.	16.5	1.8	14.7	159.
F026	<15.	27.4	<15.	21.1	51.9	262.	<15.	<15.	<15.	165.
F060	0.4	28.1	4.6	22.4	52.1	247.	16.3	1.9	14.8	154.
F068	0.3	27.	4.2	21.	48.	218.	15.	1.7	13.	146.
F069	0.401	33.1	5.24	25.9	59.1	292. WH	18.1	2.05	16.4	175.
F153	<0.5	26.7	4.1	21.1	49.		14.7	1.9	13.3	142.
F153b	<10.	27.	<10.	21.	50.	232.	14.8	<10.	13.7	148.
F154	<1.0	33.3	5.3	26.2 WH	59.9	271.	19.8 WH	2.6 AH	16.6	178.
F158	<2.	30.5	5.1	23.5	56.7	246.	17.4	2.3	15.9	166.
F169	<0.50	29.0	4.47	23.8	52.2	233.	16.4	1.67	14.2	153.
F183	<0.50	33.2	5.19	24.3	58.0	261.	17.2	1.91	15.6	171.
F193	<0.5	30.1	4.5	22.2	51.2	244.	16.1	1.9	14.2	154.
F249	0.32	27.7	4.51	22.1	50.0	238.	16.1	1.85	13.2	165.
F293	0.35	28.5	4.19	22.3	48.4	225.	15.8	1.76	13.6	140.
F294	0.7 AH	27.8	4.4	22.3	51.3	235.	16.	1.9	12.8	152.
F301	<0.60	29.0	<0.60 AL	19.3	65.8 AH	270.	13.6	<0.60 AL	9.67 AL	158.
F308	3.01 AH	18.2 AL	1.02 AL	5.33 AL	54.0	290.	19.9 WH	1.40 WL	15.3	169.
F316	<10.0	27.3	<10.0	21.6	46.5	213.	15.2	<10.0	13.1	135.
ASSIGNED VALUE *	0.375	29.2	4.61	22.45	52.7	247	16.3	1.87	14.43	158
R-STD DEV *	0.0869	2.41	0.468	1.759	4.17	21.4	1.41	0.222	1.368	13.1
ACCEPTABLE LIMITS(+-) *	0.1738	4.82	0.936	3.518	8.34	42.8	2.82	0.444	2.736	26.2
WARNING LIMITS(+-) *	.1738- .2607	4.82- 7.23	.936- 1.404	3.518- 5.277	8.34- 12.51	42.8- 64.2	2.82- 4.23	.444- .666	2.736- 4.104	26.2- 39.3
ACTION LIMITS(<>) *	0.2607	7.23	1.404	5.277	12.51	64.2	4.23	0.666	4.104	39.3
N *	14	26	22	26	27	26	25	22	25	27

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	94.0	9.4			10			ICP-MS
F007	116.0	11.6			10			ICP-MS
F009	193.0	21.4		BIASED HIGH	9	10.9	-0.0358	ICP-MS
F011	85.0	8.5			10			
F015	47.0	15.6		INSUFFICIENT DATA	3			ICP-AES
F015b	206.0	20.6		BIASED HIGH	10	7.7	0.5011	ICP-MS
F020	148.5	14.8			10			ICP-MS
F021	47.0	4.7		BIASED LOW	10	-9.5	0.3810	ICP-MS
F022	128.5	14.2	WH		9			ICP-MS
F024	141.0	14.1			10			ICP-MS
F026	67.0	13.4			5			ICP-AES
F060	141.0	14.1			10			ICP-MS
F068	35.0	3.5		BIASED LOW	10	-10.8	0.6411	ICP-MS
F069	221.5	22.1	WH	BIASED HIGH	10	16.5	-0.9722	ICP-MS
F153	39.5	4.9		BIASED LOW	8	-10.2	0.4626	ICP-MS
F153b	38.0	5.4		BIASED LOW	7	-6.1	-0.1150	ICP-AES
F154	221.0	24.5	WH WHAH	BIASED HIGH	9	10.0	1.2694	ICP-MS
F158	174.5	19.3			9			ICP-MS
F169	110.5	12.2			9			ICP-MS CRI
F183	187.5	20.8		BIASED HIGH	9	6.1	0.8317	ICP-MS
F193	117.0	13.0			9			ICP-MS
F249	99.0	9.9			10			ICP-MS
F293	71.5	7.1			10			ICP-MS
F294	102.5	10.2	AH		10			ICP-MS
F301	83.5	11.9	AL AH ALAL		7			SAA-Horno Grafito-Se
F308	128.0	12.8	AHALALAL WHWL		10			ICP-MS
F316	27.0	3.8		BIASED LOW	7	-14.7	1.5804	ICP-AES

OVERALL AVERAGE RANK IS 12.7

PARAMETER: 47095 Silver ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.00849	22.2	3.87	13.9	11.9	2.88	11.1	0.309	12.1	12.5
F007	0.012	22.3	3.77	14.4	12.5	2.88	11.3	0.334	12.4	13.2
F009	<1.	23.	3.9	14.	12.	3.0	11.	<1.	12.	13.
F011	<0.1	21.5	3.6	13.5	11.6	2.8	10.7	0.3	11.7	12.2
F015b	<0.02	19.6 AL	3.44 WL	12.2 WL	10.5 WL	2.60	9.84 WL	0.30	10.8 WL	11.3
F020	<0.0050	23.	3.55	12.1 WL	11.1	2.67	11.6	0.304	12.9	11. WL
F021	0.01	22.1	3.82	13.8	12.2	3.01	10.9	0.32	11.8	12.6
F022	0.008	21.9	3.62	13.2	12.1	2.87	11.1	0.365	12.2	12.5
F024	<1.	21.2	3.7	13.2	11.3	2.8	10.6	<1.	11.6	12.1
F026b	<5.	22.7	<5.	14.0	12.5	<5.	11.7	<5.	12.8	13.1
F060	<0.01	21.9	3.91	13.5	11.9	3.06	11.3	0.44 WH	12.4	12.9
F068	<0.01	22.1	3.79	13.1	11.4	2.93	10.7	0.32	11.6	11.9
F069	<0.020	21.7	3.83	13.4	11.7	2.83	10.8	0.344	11.8	12.2
F069b	<1.10	21.9	3.82	13.3	11.5	1.56 AL	10.7	<1.10	11.7	11.8
F154	<0.10	22.6	4.15 WH	14.7	12.7	3.1	12.0	0.37	13.0	13.7
F158	<2.	22.4	3.9	13.9	11.8	3.2	11.6	<2.	12.3	12.9
F169	<0.10	22.0	3.88	14.1	12.2	2.96	11.5	0.34	12.5	13.0
F249	0.003	21.9	3.79	13.6	11.8	2.92	11.0	0.30	12.0	13.1
F293	<0.025	22.2	3.94	14.1	12.3	3.07	11.4	0.356	12.2	12.9
F294	<0.1	21.1	3.7	13.	11.1	2.8	10.6	0.3	11.8	12.3
F301	<0.03	22.0	<0.60 AL	14.0	12.4	2.06 AL	12.5 WH	0.51 AH	12.6	14.1 WH
F308	0.016	24.9 AH	4.38 AH	15.3 WH	12.7	2.47	11.4	0.35	12.9	12.4
F316	<5.00	22.7	<5.00	14.3	12.3	<5.00	11.5	<5.00	12.6	12.9
ASSIGNED VALUE *	0.00958	22.1	3.80	13.7	11.9	2.85	11.16	0.334	12.2	12.6
R-STD DEV *	0.004923	0.64	0.165	0.63	0.58	0.223	0.500	0.0351	0.54	0.65
ACCEPTABLE LIMITS(+-) *	0.009846	1.28	0.330	1.26	1.16	0.446	1.000	0.0702	1.08	1.30
WARNING LIMITS(+-) *	.009846- .011	.28- 1.92	.330- .495	1.26- 1.89	1.16- 1.74	.446- .669	1.000- 1.500	.0702- .1053	1.08- 1.62	1.30- 1.95
ACTION LIMITS(<>) *	0.014769	1.92	0.495	1.89	1.74	0.669	1.500	0.1053	1.62	1.95
N *	6	23	20	23	23	21	23	17	23	23

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	106.0	10.6			10			ICP-MS
F007	140.0	14.0			10			ICP-MS
F009	118.5	14.8			8			ICP-MS
F011	49.0	5.4		BIASED LOW	9	-2.5	-0.0494	
F015b	15.5	1.7	ALWLWLWL WL WL	BIASED LOW	9	-11.5	0.0408	ICP-MS
F020	79.0	8.7	WL WL		9			ICP-MS
F021	106.0	10.6			10			ICP-MS
F022	91.5	9.1			10			ICP-MS
F024	35.0	4.3		BIASED LOW	8	-4.5	0.0264	ICP-MS
F026b	116.5	19.4		BIASED HIGH	6	0.4	0.4607	ICP-AES
F060	123.0	13.6	WH		9			ICP-MS
F068	63.0	7.0			9			ICP-MS
F069	73.5	8.1			9			ICP-MS
F069b	44.5	5.5	AL		8			ICP-AES
F154	183.5	20.3	WH	BIASED HIGH	9	3.4	0.2903	ICP-MS
F158	124.5	15.5			8			ICP-MS
F169	135.5	15.0			9			ICP-MS
F249	91.5	9.1			10			ICP-MS
F293	143.0	15.8			9			ICP-MS
F294	40.0	4.4		BIASED LOW	9	-4.7	0.0360	ICP-MS
F301	129.0	16.1	AL ALWHAH WH		8			SAA-Horno Grafito-Ag
F308	155.5	15.5	AHAHWH		10			ICP-MS
F316	107.5	17.9		BIASED HIGH	6	2.3	0.1249	ICP-AES

OVERALL AVERAGE RANK IS 11.2

PARAMETER: 38095 Strontium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE LAB NO	1= TM104-1 LAB RESULT	2= TM104-2 LAB RESULT	3= TM104-3 LAB RESULT	4= TM104-4 LAB RESULT	5= TM104-5 LAB RESULT	6= TM104-6 LAB RESULT	7= TM104-7 LAB RESULT	8= TM104-8 LAB RESULT	9= TM104-9 LAB RESULT	10= TM104-10 LAB RESULT
F003	35.6	72.3	71.3	365.	145.	308.	112.	112.	114.	623.
F009	37.	75.	74.	365.	149.	311.	116.	115.	118.	628.
F011	37.7	74.7	74.6	373.	153.	312.	118.	120.	121.	624.
F015	36.	73.	73.	369.	147.	309.	114.	113.	118.	626.
F015b	37.0	75.3	74.7	368.	149.	314.	119.	120.	123.	641.
F020	35.3	69.7	71.9	362.	152.	310.	107. WL	115.	119.	631.
F021	37.	75.	75.	374.	151.	314.	117.	117.	120.	650.
F022	34.3 WL	73.2	72.2	369.	144.	305.	109.	112.	116.	620.
F024	36.5	73.7	73.7	369.	147.	309.	115.	115.	119.	673. WH
F026	35.6	71.6	71.5	365.	150.	311.	113.	112.	120.	618.
F060	39. WH	76.	78. WH	373.	154.	311.	124. AH	123. WH	124. WH	619.
F068	35.9	72.1	71.3	357.	144.	317.	111.	112.	114.	615.
F069	36.4	72.4	72.7	360.	144.	305.	114.	112.	117.	617.
F069b	36.7	72.2	71.7	364.	143.	310.	113.	113.	118.	621.
F153	36.	71.	70.		143.		112.	115.	115.	
F153b	36.	72.	72.	360.	145.	312.	113.	114.	118.	619.
F154	36.1	72.9	72.8	376.	150.	316.	116.	118.	121.	642.
F158	35.2	70.5	70.7	362.	144.	307.	112.	112.	114.	641.
F169	37.4	76.	74.7	355.	145.	298.	117.	119.	119.	622.
F183	38.0	73.7	75.0	378.	148.	324. WH	114.	116.	117.	649.
F207	36.1	72.3	75.1	369.	145.	296. WL	113.	111.	116.	654.
F249a	36.4	72.9	72.4	375.	145.	312.	113.	114.	117.	651.
F249b	34.9	71.9	71.2	358.	138. WL	299.	109.	109.	112.	618.
F293	37.5	74.9	74.4	381.	153.	314.	118.	117.	121.	643.
F294	35.9	71.3	71.2	357.	146.	293. WL	113.	112.	111.	611.
F308	35.4	71.3	71.2	358.	142.	302.	111.	109.	114.	589. WL
F316	36.7	74.1	72.8	363.	146.	306.	115.	113.	116.	618.
ASSIGNED VALUE *	36.3	73.0	72.8	366	147	309	114	114	117	629
R-STD DEV *	0.99	1.83	1.81	7.9	4.0	6.3	3.3	3.5	3.3	16.6
ACCEPTABLE LIMITS(+-) *	1.98	3.66	3.62	15.8	8.0	12.6	6.6	7.0	6.6	33.2
WARNING LIMITS(+-) *	1.98- 2.97	3.66- 5.49	3.62- 5.43	15.8- 23.7	8.0- 12.0	12.6- 18.9	6.6- 9.9	7.0- 10.5	6.6- 9.9	33.2- 49.8
ACTION LIMITS(<>) *	2.97	5.49	5.43	23.7	12.0	18.9	9.9	10.5	9.9	49.8
N *	27	27	27	26	27	26	27	27	27	26

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	90.0	9.0			10			ICP-MS
F009	181.5	18.1			10			ICP-MS
F011	220.0	22.0		BIASED HIGH	10	-0.9	4.7776	
F015	148.0	14.8			10			ICP-AES
F015b	221.0	22.1		BIASED HIGH	10	1.3	1.7641	ICP-MS
F020	115.5	11.5	WL		10			ICP-MS
F021	224.5	22.4		BIASED HIGH	10	3.1	-0.8470	ICP-AES
F022	89.0	8.9	WL		10			ICP-MS
F024	180.0	18.0	WH		10			ICP-MS
F026	117.0	11.7			10			ICP-AES
F060	233.5	23.3	WH WH AHWHWH	BIASED HIGH	10	-2.2	8.7268	ICP-MS
F068	77.0	7.7			10			ICP-MS
F069	101.0	10.1			10			ICP-MS
F069b	115.5	11.5			10			ICP-AES
F153	50.0	7.1			7			ICP-MS
F153b	116.5	11.6			10			ICP-AES
F154	200.5	20.0			10			ICP-MS
F158	68.0	6.8			10			ICP-MS
F169	164.5	16.4			10			ICP-MS
F183	208.0	20.8	WH		10			ICP-MS
F207	130.0	13.0	WL		10			ICP-AES
F249a	158.0	15.8			10			ICP-AES
F249b	34.5	3.4	WL	BIASED LOW	10	-1.6	-2.5288	ICP-AES
F293	230.5	23.0		BIASED HIGH	10	2.4	0.8863	ICP-AES
F294	56.5	5.6	WL	BIASED LOW	10	-3.2	0.6376	ICP-MS
F308	36.5	3.6	WL	BIASED LOW	10	-5.7	3.8495	ICP-MS
F316	132.0	13.2			10			ICP-AES

OVERALL AVERAGE RANK IS 13.8

PARAMETER: 81095 Thallium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.00885	30.2	3.83	14.9	51.6	158.	18.0	1.43	20.1	140.
F007	<0.003	31.7	3.91	16.6	53.1	162.	18.9	1.51	21.4	146.
F009	<1.	30.	3.7	15.	52.	157.	19.	1.4	20.	137.
F011	<0.1	29.5	3.7	14.7	50.4	151.	17.7	1.5	19.8	137.
F015b	0.004	30.7	3.98	15.3	50.9	154.	18.1	1.46	20.3	137.
F020	0.007	31.7	4.05	15.7	53.6	167.	19.3	1.51	21.6	149.
F021	<0.01	23.8 AL	3.65	13.0 WL	40.3 AL	102. AL	14.2 AL	1.45	16.2 AL	88.1 AL
F022	0.011	30.2	3.99	15.4	51.1	158.	18.1	1.53	20.5	141.
F024	<0.2	29.9	3.9	14.9	50.8	161.	17.9	1.4	20.0	145.
F060	<0.05	31.6	4.11	16.2	53.5	163.	19.6	1.64	20.9	148.
F068	0.0262	29.2	3.66	14.7	48.4	155.	17.5	1.38	19.3	133.
F069	<0.030	31.6	3.93	15.3	54.6	158.	18.4	1.54	20.5	144.
F153	<0.2	30.0	3.7	14.8	49.	151.	17.8	1.4	19.7	132.
F153b	<10.	30.	<10.	15.0	50.	155.	18.2	<10.	19.8	140.
F154	<0.10	31.4	4.10	16.0	55.3	168.	18.9	1.60	21.7	152.
F158	<2.	30.7	4.0	15.3	52.4	164.	18.4	<2.	20.6	144.
F183	<0.10	30.6	3.95	15.1	52.1	157.	18.2	1.45	20.1	139.
F249	0.010	29.8	3.91	14.8	50.3	157.	18.1	1.48	20.1	144.
F293	0.15 AH	31.5	4.11	15.9	54.0	161.	19.4	1.68 WH	21.4	149.
F294	0.04	29.	3.9	14.6	50.1	150.	18.5	1.5	19.2	135.
F308	0.005	28.2	3.6	13.8	47.4	146.	17.3	1.30 WL	18.9	129.
F316	<10.0	28.5	<10.0	10.6 AL	48.7	153.	17.1	<10.0	17.6 WL	134.
ASSIGNED VALUE *	0.01719	30.2	3.88	15.1	51.2	157	18.2	1.48	20.1	140.1
R-STD DEV *	0.017179	1.25	0.185	0.75	2.51	6.4	0.80	0.089	1.02	7.46
ACCEPTABLE LIMITS(+-) *	0.034358	2.50	0.370	1.50	5.02	12.8	1.60	0.178	2.04	14.92
WARNING LIMITS(+-) *	.034358- .052	.50- 3.75	.370- .555	1.50- 2.25	5.02- 7.53	12.8- 19.2	1.60- 2.40	.178- .267	2.04- 3.06	14.92- 22.38
ACTION LIMITS(<>) *	0.051537	3.75	0.555	2.25	7.53	19.2	2.40	0.267	3.06	22.38
N *	9	22	20	22	22	22	22	19	22	22

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	97.5	9.7			10			ICP-MS
F007	157.5	17.5		BIASED HIGH	9	3.4	0.3122	ICP-MS
F009	92.0	10.2			9			ICP-MS
F011	62.0	6.8			9			
F015b	104.5	10.4			10			ICP-MS
F020	174.5	17.4		BIASED HIGH	10	6.4	-0.1809	ICP-MS
F021	17.5	1.9	AL WLALALAL ALAL	BIASED LOW	9	-37.5	3.2465	ICP-MS
F022	130.0	13.0			10			ICP-MS
F024	90.0	10.0			9			ICP-MS
F060	174.0	19.3		BIASED HIGH	9	4.5	0.1896	ICP-MS
F068	47.0	4.7		BIASED LOW	10	-2.9	-0.2475	ICP-MS
F069	142.5	15.8			9			ICP-MS
F153	51.0	5.6			9			ICP-MS
F153b	67.5	9.6			7			ICP-AES
F154	177.5	19.7		BIASED HIGH	9	7.8	-0.2790	ICP-MS
F158	129.0	16.1			8			ICP-MS
F183	108.0	12.0			9			ICP-MS
F249	96.0	9.6			10			ICP-MS
F293	182.0	18.2	AH WH	BIASED HIGH	10	4.1	0.3082	ICP-MS
F294	72.0	7.2			10			ICP-MS
F308	21.0	2.1	WL	BIASED LOW	10	-7.4	0.0788	ICP-MS
F316	23.0	3.2	AL WL	BIASED LOW	7	-1.9	-2.0341	ICP-AES

OVERALL AVERAGE RANK IS 10.9

PARAMETER: 50095 Tin ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.0343	24.7	3.77	18.8	112.	136.	15.2	2.29	16.4	290.
F007	<0.02	24.7	4.03	19.	114.	136.	15.3	2.55	16.9	300.
F009	<5.	22. WL	<5.	17. WL	106.	134.	17. WH	<5.	16.	283.
F011	<0.1	23.4	3.8	18.4	108.	131.	15.3	2.7	16.1	288.
F015	<50.	<50.	<50.	<50.	140. AH	130.	<50.	<50.	50. AH	310. WH
F015b	0.19	24.4	4.04	18.9	124. WH	130.	16.1	2.63	16.7	213. AL
F020	<0.20	23.6	3.72	18.	107.	125.	14.3	2.3	16.7	269.
F021	<0.05	24.8	3.79	19.3	113.	137.	15.1	2.35	16.3	294.
F022	<0.01	24.1	4.01	18.4	112.	136.	15.6	2.38	16.7	277.
F024	<1.	23.2	3.8	18.0	108.	132.	14.7	2.4	15.8	278.
F060	<1.	24.	4.	19.	109.	133.	16.	3. AH	17.	280.
F068	<0.01	24.6	3.81	18.5	112.	144.	15.1	2.32	16.3	286.
F153	<0.2	24.0	3.7	18.4	111.	137.	14.6	2.3	16.2	274.
F154	<0.20	24.0	3.81	18.5	114.	137.	15.5	2.43	16.5	295.
F158	<2.	23.1	4.5 AH	18.2	110.	134.	14.6	2.4	15.9	284.
F183	<0.50	23.4	3.94	18.7	108.	142.	14.7	2.44	15.6	292.
F249	0.005	24.9	3.94	19.2	113.	138.	15.5	2.35	16.8	287.
F293	<3.0	25.9 WH	5.7 AH	20.6 AH	114.	135.	16.6	4.3 AH	18.7 AH	281.
F294	<0.5	23.8	3.8	17.7	106.	130.	14.8	2.4	15.8	279.
F301	<0.40	24.8	<0.40 AL	17.5	102.	117. WL	14.9	<0.40 AL	16.3	220. AL
F308	0.013	25.1	4.09	18.4	119.	282. AH	14.4	2.29	16.2	286.
F316	<10.0	22.7	<10.0	17. WL	104.	126.	14.	<10.0	15.1 WL	263.
ASSIGNED VALUE *	0.0535	24.1	3.91	18.4	111	134	15.2	2.44	16.4	283
R-STD DEV *	0.08298	0.89	0.171	0.69	5.0	5.8	0.72	0.160	0.56	12.5
ACCEPTABLE LIMITS(+-) *	-	1.78	0.342	1.38	10.0	11.6	1.44	0.320	1.12	25.0
WARNING LIMITS(+-) *	-	1.78- 2.67	.342- .513	1.38- 2.07	10.0- 15.0	11.6- 17.4	1.44- 2.16	.320- .480	1.12- 1.68	25.0- 37.5
ACTION LIMITS(<>) *	-	2.67	0.513	2.07	15.0	17.4	2.16	0.480	1.68	37.5
N *	4	21	18	21	22	22	21	18	22	22

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	107.0	10.7			10			ICP-MS
F007	146.5	16.2			9			ICP-MS
F009	54.5	7.7	WL WL WH		7			ICP-MS
F011	87.5	9.7			9			
F015	71.0	17.7	AH AHWH	INSUFFICIENT DATA	4			ICP-AES
F015b	125.0	12.5	WH AL		10			ICP-MS
F020	47.0	5.2		BIASED LOW	9	-5.2	0.3286	ICP-MS
F021	121.0	13.4			9			ICP-MS
F022	108.5	12.0			9			ICP-MS
F024	57.5	6.3			9			ICP-MS
F060	121.5	13.5	AH		9			ICP-MS
F068	109.0	12.1			9			ICP-MS
F153	70.0	7.7			9			ICP-MS
F154	127.5	14.1			9			ICP-MS
F158	79.0	8.7	AH		9			ICP-MS
F183	96.5	10.7			9			ICP-MS
F249	139.0	13.9			10			ICP-MS
F293	159.0	17.6	WHAHAH AHAH	BIASED HIGH	9	-1.2	2.2937	ICP-AES
F294	56.0	6.2			9			ICP-MS
F301	44.5	6.3	AL WL AL AL		7			SAA-Horno Grafito-Sn
F308	116.0	11.6	AH		10			ICP-MS
F316	13.5	1.9	WL WL	BIASED LOW	7	-6.9	0.1806	ICP-AES

OVERALL AVERAGE RANK IS 10.7

PARAMETER: 22095 Titanium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	1.04	25.8	8.32	0.131	57.8	175.	15.6	1.92	14.6	122.
F011	0.2	25.1	8.3	0.1	57.3	175.	14.7	2.0	14.1	125.
F015	<2.	25.	8.	<2.	58.	175.	15.	<2.	14.	123.
F015b	<2.	25.	8.	<2.	58.	175.	15.	<2.	14.	123.
F020	<0.50	24.6	6.97 WL	<2.5	61.5 WH	173.	13.9	1.9	13.8	123.
F021	0.27	24.6	8.10	0.11	56.7	170.	14.7	1.99	13.5	120.
F022	0.368	24.9	8.37	0.182	57.1	175.	15.4	2.07	14.3	126.
F024	0.3	26.1	8.4	0.8	59.0	176.	15.3	1.8	14.8	126.
F060	<0.5	25.2	7.9		58.5	173.	15.6	1.7	14.0	123.
F068	0.5	24.	7.9	<0.1	56.	174.	14.	1.9	13. WL	122.
F153	0.56	24.6	7.9	<0.2	54. WL	165. WL	13.8	1.8	13.8	119. WL
F154	<0.50	25.2	7.74	<0.50	57.1	170.	14.5	1.44 WL	13.8	122.
F158	<2.	24.9	8.0	<2.	57.5	175.	14.8	<2.	14.0	125.
F183	<0.25	25.7	8.55	<0.25	59.6	179.	15.0	1.88	14.1	122.
F249a	<1.	25.2	7.93	<1.	58.6	178.	14.7	1.83	14.2	126.
F249b	<1.	25.5	8.13	<1.	57.1	176.	14.8	1.84	14.1	125.
F293	<0.75	23.6	6.79 AL	<0.75	56.4	170.	13.3	<0.75 AL	12.2 AL	121.
F294	<0.7	24.2	7.7	<0.7	56.7	176.	14.2	1.6	13.8	124.
F308	37.0 AH	63.6 AH	55.4 AH	52.1 AH	112. AH	181.	85.7 AH	77.4 AH	84.9 AH	163. AH
F316	<5.00	26.1	12.4 AH	<5.00	60.	180.	17.2 AH	<5.00	16.2 AH	126.
ASSIGNED VALUE *	0.550	25.1	8.08	0.386	57.9	175	14.8	1.86	14.1	124
R-STD DEV *	0.4097	0.76	0.398	0.4556	1.59	3.6	0.79	0.169	0.51	2.4
ACCEPTABLE LIMITS(+-) *	0.8194	1.52	0.796	0.9112	3.18	7.2	1.58	0.338	1.02	4.8
WARNING LIMITS(+-) *	.8194- 1.2291	.52- 2.28	.796- 1.194	.9112- 1.3663	.18- 4.77	7.2- 10.8	1.58- 2.37	.338- .507	1.02- 1.53	4.8- 7.2
ACTION LIMITS(<>) *	1.2291	2.28	1.194	1.3668	4.77	10.8	2.37	0.507	1.53	7.2
N *	8	20	20	6	20	20	20	15	20	20

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	114.5	11.4			10			ICP-MS
F011	94.5	9.4			10			
F015	74.5	10.6			7			ICP-AES
F015b	74.5	10.6			7			ICP-AES
F020	59.0	7.3	WL WH		8			ICP-MS
F021	53.5	5.3			10			ICP-MS
F022	112.5	11.2			10			ICP-MS
F024	129.5	12.9			10			ICP-MS
F060	78.0	9.7			8			ICP-MS
F068	43.0	4.7	WL	BIASED LOW	9	-0.7	-0.5781	ICP-MS
F153	32.0	3.5	WLWL WL	BIASED LOW	9	-5.4	0.1860	ICP-MS
F154	45.0	5.6	WL		8			ICP-MS
F158	72.0	10.2			7			ICP-MS
F183	108.5	13.5			8			ICP-MS
F249a	99.5	12.4			8			ICP-AES
F249b	94.5	11.8			8			ICP-AES
F293	13.0	1.8	AL ALAL	BIASED LOW	7	-1.9	-1.0820	ICP-AES
F294	50.0	6.2			8			ICP-MS
F308	169.0	16.9	AHAHAHAHAH AHAHAHAH	BIASED HIGH	10	-24.7	59.4674	ICP-MS
F316	130.0	18.5	AH AH AH	BIASED HIGH	7	0.9	2.1435	ICP-AES

OVERALL AVERAGE RANK IS 9.7

PARAMETER: 74095 Tungsten ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F020	0.02	9.54	3.56	0.119	0.083	<0.10	0.068	0.067	0.092	0.37
F022	0.0131	9.36	3.55	0.0665	0.0489	0.0212	0.0533	0.0558	0.0631	0.335
F060				<0.5						
F069	<0.030	10.2	3.84	0.076	0.053	<0.030	0.053	0.059	0.072	0.367
F154	<0.10	10.1	3.90	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.39
F308	0.13	26.6	5.56	0.136	0.038	0.236	0.26	0.234	0.242	0.713
ASSIGNED VALUE *	0.0544	10.21	3.90	0.0994	0.0557	0.1286	0.0775	0.0744	0.1111	0.386
R-STD DEV *	0.07438	1.121	0.510	0.03792	0.02183	-	0.04474	0.03167	0.08154	0.0566
ACCEPTABLE LIMITS(+-) *	-	-	-	-	-	-	-	-	-	-
WARNING LIMITS(+-) *	-	-	-	-	-	-	-	-	-	-
ACTION LIMITS(<>) *	-	-	-	-	-	-	-	-	-	-
N *	3	5	5	4	4	2	4	4	4	5

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F020	25.0	2.7			9			ICP-MS
F022	12.0	1.2			10			ICP-MS
F060	0.0	0.0			0			
F069	19.0	2.3			8			ICP-MS
F154	11.0	3.6			3			ICP-MS
F308	37.0	3.7			10			ICP-MS

NOTE: BIAS WAS NOT ASSESSED BECAUSE STATISTICS FOR FEWER THAN 10 LABS WERE AVAILABLE

OVERALL AVERAGE RANK IS 2.6

PARAMETER: 92095 Uranium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.0446	26.9	5.81	31.9	56.3	329.	15.2	1.99	28.1	132.
F009	<1.	26.	5.5 WL	32.	55.	332.	15.	2.0	28.	128.
F011	<0.1	26.8	5.8	32.1	55.0	325.	15.3	2.0	29.0	135.
F015b	0.042	27.5	5.9	32.1	54.5	321.	15.1	1.95	28.1	122.
F020	0.046	29.4 WH	5.93	32.7	56.2	353.	16.5 WH	2.05	31. WH	144.
F021	0.05	27.2	5.85	32.7	55.7	351.	15.5	2.00	28.6	136.
F022	0.044	27.4	5.92	31.7	55.5	345.	17.5 AH	2.18 WH	28.8	135.
F024	<0.1	26.6	5.7	31.5	54.6	334.	15.1	2.0	28.1	137.
F060	<0.5	27.6	6.0	32.9	56.7	352.	16.0	2.2 WH	29.3	138.
F068	0.04	27.2	5.71	32.6	54.5	349.	15.5	1.94	28.3	133.
F069	0.042	28.4	5.66	34.	58.	342.	15.	1.95	30.2	136.
F153	<0.2	26.0	5.9	30.0 WL	51. WL		15.2	2.0	27.7	124.
F153b	<10.	26.	<10.	30. WL	50. AL	388. AH	16.	<10.	28.	130.
F154	<0.10	27.4	6.03	33.6	58.4	348.	15.5	2.11	29.8	139.
F158	<2.	27.5	6.0	32.7	57.1	345.	15.6	2.0	29.3	147. WH
F183	<0.05	27.7	5.97	32.9	56.5	430. AH	15.6	2.06	28.6	137.
F193	<0.7	27.4	6.4 AH	31.7	54.0	334.	15.5	2.5 AH	27.8	130.
F249	0.048	30.2 AH	5.87	32.8	56.2	349.	15.2	2.01	28.8	135.
F293	0.050	27.6	5.96	33.7	57.3	341.	16.0	2.07	29.6	142.
F294	0.1 AH	27.3	6.	32.1	55.3	328.	14.9	2.	28.	130.
F308	0.04	26.8	5.68	31.6	54.1	329.	15.7	1.92	28.5	129.
ASSIGNED VALUE *	0.0454	27.3	5.87	32.3	55.6	342	15.5	2.02	28.7	134
R-STD DEV *	0.00491	0.79	0.155	0.91	1.63	13.6	0.45	0.075	0.81	6.1
ACCEPTABLE LIMITS(+-) *	0.00982	1.58	0.310	1.82	3.26	27.2	0.90	0.150	1.62	12.2
WARNING LIMITS(+-) *	.00982- .0141	.58- 2.37	.310- .465	1.82- 2.73	3.26- 4.89	27.2- 40.8	.90- 1.35	.150- .225	1.62- 2.43	12.2- 18.3
ACTION LIMITS(<>) *	0.01473	2.37	0.465	2.73	4.89	40.8	1.35	0.225	2.43	18.3
N *	11	21	20	21	21	20	21	20	21	21

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	73.5	7.3			10			ICP-MS
F009	44.0	4.8	WL	BIASED LOW	9	-3.1	-0.0016	ICP-MS
F011	76.0	8.4			9			
F015b	61.0	6.1			10			ICP-MS
F020	160.5	16.0	WH WH WH	BIASED HIGH	10	3.5	0.4741	ICP-MS
F021	113.5	11.3			10			ICP-MS
F022	120.5	12.0	AHWH		10			ICP-MS
F024	61.5	6.8			9			ICP-MS
F060	155.5	17.2	WH	BIASED HIGH	9	3.0	-0.1939	ICP-MS
F068	78.5	7.8			10			ICP-MS
F069	115.0	11.5			10			ICP-MS
F153	35.0	4.3	WLWL	BIASED LOW	8	-8.0	0.5689	ICP-MS
F153b	51.5	7.3	WLALAH		7			ICP-AES
F154	149.5	16.6		BIASED HIGH	9	1.9	0.5045	ICP-MS
F158	136.0	15.1	WH		9			ICP-MS
F183	143.0	15.8	AH		9			ICP-MS
F193	87.5	9.7	AH AH		9			ICP-MS
F249	126.5	12.6	AH		10			ICP-MS
F293	159.0	15.9			10			ICP-MS
F294	81.0	8.1	AH		10			ICP-MS
F308	53.5	5.3			10			ICP-MS

OVERALL AVERAGE RANK IS 10.5

PARAMETER: 23095 Vanadium ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	0.0729	27.0	3.23	313.	113.	389.	14.1	2.17	46.2	279.
F007	0.084	27.	3.17	316.	117.	390.	14.2	2.35	47.6	282.
F009	<1.	28.	3.2	320.	119.	401.	15.	2.3	48.	286.
F011	<0.1	26.8	3.0	304.	114.	376.	13.8	2.2	45.0	277.
F015	<10.	30. AH	<10.	320.	120.	400.	20. AH	<10.	50. WH	290.
F015b	0.08	28.2	3.23	310.	117.	392.	14.5	2.41	47.3	277.
F020	<0.20	27.	3.06	306.	114.	378.	13.6	2.15	44.7	275.
F021	0.11	27.8	3.22	314.	114.	410.	14.6	2.32	44.4	280.
F022	0.292	26.9	3.19	311.	116.	383.	13.9	2.42	45.4	271.
F024	<0.1	26.9	3.1	317.	116.	395.	14.0	2.2	46.6	284.
F026b	<5.	27.4	<5.	319.	119.	395.	13.9	<5.	46.6	282.
F060	<0.1	27.9	3.3	329. WH	119.	410.	15.0	2.5	48.9	290.
F068	0.18	26.7	3.08	299.	113.	388.	14.	2.23	45.1	271.
F069	0.22	26.5	3.1	311.	114.	382.	13.8	2.21	45.4	278.
F069b	<0.600	27.3	3.7 AH	314.	114.	383.	14.5	3.08 AH	45.3	274.
F153	0.55 AH	27.2	3.5 WH		110.		14.1	2.6	45.1	
F153b	<5.	27.	<5.	310.	111.	384.	15.0	<5.	45.	283.
F154	<0.20	27.7	3.25	322.	119.	405.	14.5	2.48	48.4	291.
F158	<2.	26.4	3.0	298.	112.	369.	13.8	2.2	44.9	270.
F183	<0.10	27.5	3.16	314.	117.	398.	14.4	2.40	47.4	275.
F249	0.101	26.5	3.05	300.	110.	378.	13.9	2.18	45.6	275.
F249a		26.9		307.	112.	387.	14.5		46.6	277.
F249b	<1.	27.2		308.	111.	388.	14.0		45.6	276.
F293	<2.0	27.8	3.2	321.	119.	393.	14.4	2.1	46.5	288.
F294	0.1	25.8 WL	3.1	303.	111.	396.	13.9	2.3	43.2	282.
F308	0.094	26.8	3.21	311.	114.	381.	14.6	2.10	45.9	273.
F316	<10.0	29.8 AH	<10.0	307.	114.	384.	17.5 AH	<10.0	48.7	274.
ASSIGNED VALUE *	0.1445	27.2	3.17	312	115	390	14.3	2.30	46.2	279
R-STD DEV *	0.08853	0.66	0.114	8.0	3.5	10.5	0.51	0.162	1.61	6.7
ACCEPTABLE LIMITS(+-) *	0.17706	1.32	0.228	16.0	7.0	21.0	1.02	0.324	3.22	13.4
WARNING LIMITS(+-) *	.17706- .2651	.32- 1.98	.228- .342	16.0- 24.0	7.0- 10.5	21.0- 31.5	1.02- 1.53	.324- .486	3.22- 4.83	13.4- 20.1
ACTION LIMITS(<>) *	0.26559	1.98	0.342	24.0	10.5	31.5	1.53	0.486	4.83	20.1
N *	11	27	21	26	27	26	27	21	27	26

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	114.0	11.4			10			ICP-MS
F007	147.5	14.7			10			ICP-MS
F009	186.5	20.7		BIASED HIGH	9	2.6	0.2243	ICP-MS
F011	55.5	6.1		BIASED LOW	9	-2.7	0.5632	
F015	177.0	25.2	AH AH WH	BIASED HIGH	7	1.8	3.6150	ICP-AES
F015b	156.5	15.6			10			ICP-MS
F020	54.0	6.0		BIASED LOW	9	-2.4	0.3218	ICP-MS
F021	151.5	15.1			10			ICP-MS
F022	104.5	10.4			10			ICP-MS
F024	128.0	14.2			9			ICP-MS
F026b	124.0	17.7			7			ICP-AES
F060	211.0	23.4	WH	BIASED HIGH	9	5.0	-0.3419	ICP-MS
F068	71.0	7.1			10			ICP-MS
F069	88.0	8.8			10			ICP-MS
F069b	129.5	14.3	AH AH		9			ICP-AES
F153	88.0	12.5	AH WH		7			ICP-MS
F153b	86.0	12.2			7			ICP-AES
F154	197.5	21.9		BIASED HIGH	9	3.8	-0.0971	ICP-MS
F158	27.0	3.0		BIASED LOW	9	-4.8	0.7752	ICP-MS
F183	145.5	16.1			9			ICP-MS
F249	52.5	5.2		BIASED LOW	10	-3.0	0.0359	ICP-MS
F249a	82.5	11.7			7			ICP-AES
F249b	73.5	10.5			7			ICP-AES
F293	155.0	17.2			9			
F294	78.0	7.8	WL		10			ICP-MS
F308	96.5	9.6			10			ICP-MS
F316	112.5	16.0	AH AH		7			ICP-AES

OVERALL AVERAGE RANK IS 12.9

PARAMETER: 30095 Zinc ug/L

WATER SCIENCE & TECHNOLOGY
ENVIRONMENT CANADA

FP PT for Trace Elements in Water

SAMPLE	1=	2=	3=	4=	5=	6=	7=	8=	9=	10=
	TM104-1	TM104-2	TM104-3	TM104-4	TM104-5	TM104-6	TM104-7	TM104-8	TM104-9	TM104-10
LAB NO	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT	LAB RESULT
F003	10.6	45.2	29.6	379.	126.	566.	34.5	16.7	139.	320.
F007	10.3	45.8	30.	388.	126.	600.	34.3	16.4	139.	336.
F009	11.	48.	31.	398.	130.	596.	36.	17.	144.	329.
F011	10.4	44.8	29.9	378.	121.	570.	34.1	15.8	136.	318.
F015	<50.	50.	<50.	410.	140. WH	580.	<50.	<50.	150.	340.
F015b	11.1	48.8	32.5	421.	134.	602.	37.0	17.4	154. WH	348. WH
F020	11.6	49.7	32.	438. WH	144. AH	651. WH	36.	16.8	144.	372. AH
F021	10.1	44.7	28.9	379.	120.	557.	33.4	15.6	129.	315.
F022	10.1	46.5	29.1	375.	119.	531.	33.1	16.0	136.	299.
F024	11.0	45.1	29.4	385.	125.	555.	34.0	15.5	138.	320.
F026	10.5	45.0	29.5	381.	124.	554.	34.0	15.7	136.	318.
F060	11.	44.	30.	386.	126.	558.	35.	17.	141.	317.
F068	10.	45.	30.	376.	124.	567.	33.	16.	137.	312.
F069	11.2	47.2	30.9	402.	129.	609.	35.4	16.4	143.	328.
F069b	9.54	45.2	29.3	376.	121.	542.	32.2	14.8	137.	307.
F153	10.2	42.7	27.7		114.		31.	14.9	125.	
F153b	10.4	43.	28.	380.	115.	540.	31.	15.0	125.	315.
F154	11.3	52.3 WH	33.2 WH	430. WH	144. AH	568.	37.6	18.6 WH	152.	371. AH
F158	11.0	47.2	31.7	404.	131.	561.	35.4	16.8	144.	332.
F169	10.1	45.	29.2	370.	127.	322. AL	35.5	15.8	139.	317.
F183	11.8	49.7	33.3 WH	397.	128.	590.	36.4	18.1	142.	316.
F193	9.5	43.2	27.9	357.	117.	524.	31.9	14.4	131.	300.
F207	10.	42.	28.	364.	122.	534.	32.	15.	123. WL	307.
F228	10.9	44.5	28.9	372.	122.	550.	34.7	16.5	138.	317.
F249	9.73	43.7	28.7	396.	130.	576.	32.1	14.9	145.	320.
F249a	10.9	46.9	30.7	393.	126.	577.	35.	16.3	141.	328.
F249b	11.0	47.3	31.0	396.	126.	578.	35.4	16.3	142.	327.
F293	11.	40. WL	29.	395.	120.	564.	33.	17.	138.	316.
F294	12.4 WH	44.5	28.8	381.	124.	533.	31.6	16.	134.	313.
F301	9.50	42.5	27.0	382.	120.	556.	31.2	13.7 WL	130.	316.
F308	11.3	48.8	30.6	403.	130.	612.	38.5 WH	17.6	147.	314.
F316	<20.0	44.5	28.3	363.	120.	535.	33.6	<20.0	131.	300.
ASSIGNED VALUE *	10.63	45.7	29.7	387	125	565	34.1	16.1	138	320
R-STD DEV *	0.739	2.71	1.59	17.1	6.1	29.4	2.12	1.09	7.4	12.8
ACCEPTABLE LIMITS(+-) *	1.478	5.42	3.18	34.2	12.2	58.8	4.24	2.18	14.8	25.6
WARNING LIMITS(+-) *	1.478- 2.217	5.42- 8.13	3.18- 4.77	34.2- 51.3	12.2- 18.3	58.8- 88.2	4.24- 6.36	2.18- 3.27	14.8- 22.2	25.6- 38.4
ACTION LIMITS(<>) *	2.217	8.13	4.77	51.3	18.3	88.2	6.36	3.27	22.2	38.4
N *	30	32	31	31	32	31	31	30	32	31

* NOTE: SEE GLOSSARY FOR DEFINITIONS

LAB NO.	TOTAL RANK	AVERAGE RANK	SUMMARY OF FLAGGING	BIAS STATEMENT	NO.SAMPLES RANKED	BIAS % SLOPE	BIAS BLANK	METHOD CODING
F003	174.0	17.4			10			ICP-MS
F007	195.5	19.5			10			ICP-MS
F009	250.5	25.0		BIASED HIGH	10	4.5	-0.6091	ICP-MS
F011	137.0	13.7			10			
F015	171.0	28.5	WH	BIASED HIGH	6	2.1	9.4177	ICP-AES
F015b	283.5	28.3	WHWH	BIASED HIGH	10	7.3	1.2402	ICP-MS
F020	285.0	28.5	WHAHWH AH	BIASED HIGH	10	15.4	-3.3895	ICP-MS
F021	94.0	9.4			10			ICP-MS
F022	90.0	9.0			10			ICP-MS
F024	153.0	15.3			10			ICP-MS
F026	134.5	13.4			10			ICP-AES
F060	179.5	17.9			10			ICP-MS
F068	122.0	12.2			10			ICP-MS
F069	239.5	23.9			10			ICP-MS
F069b	88.5	8.8			10			ICP-AES
F153	25.5	3.6		BIASED LOW	7	-9.6	0.6443	ICP-MS
F153b	63.0	6.3		BIASED LOW	10	-3.1	-1.6995	ICP-AES
F154	290.0	29.0	WHWHWHAH WH AH	BIASED HIGH	10	4.5	7.1062	ICP-MS
F158	238.5	23.8			10			ICP-MS
F169	132.5	13.2	AL		10			
F183	252.0	25.2	WH	BIASED HIGH	10	2.9	0.3043	ICP-MS
F193	32.5	3.2		BIASED LOW	10	-7.3	0.6500	ICP-MS
F207	49.5	4.9	WL	BIASED LOW	10	-5.3	-0.5496	ICP-AES
F228	130.5	13.0			10			ICP-AES total
F249	146.0	14.6			10			ICP-MS
F249a	202.5	20.2			10			ICP-AES
F249b	218.5	21.8			10			ICP-AES
F293	136.5	13.6	WL		10			ICP-MS
F294	112.5	11.2	WH		10			ICP-MS
F301	60.0	6.0	WL	BIASED LOW	10	-1.0	-2.7370	SAA-Llama-Zn
F308	254.0	25.4	WH	BIASED HIGH	10	5.9	-1.6360	ICP-MS
F316	52.5	6.5		BIASED LOW	8	-5.9	0.9681	ICP-AES

OVERALL AVERAGE RANK IS 16.0